

# **SEXUAL HARASSMENT IN THE WORKPLACE:**

## **THEORY, EVIDENCE AND REMEDIATION**

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**7 October 2016**

## **ABSTRACT**

Workplace sexual harassment is commonly attributed to workplace characteristics such as organizational tolerance. However, sexual harassment may also occur when there exists an asymmetry of incentives between supervisors and workers. Specifically, high-powered incentives for workers and low-powered incentives for supervisors create a vulnerability of workers to supervisors with a predisposition to sexually harass. Supervisors may seek sexual favors in exchange for a positive performance review or production-linked bonus. Power asymmetries may also be a contributing factor. A perception of relative power may lead a supervisor to disregard organizational norms related to the inappropriateness of workplace sexual harassment. Power asymmetries may also affect a worker's perception of her ability to seek alternative employment. Analyzing a micro-dataset collected in Better Work participating apparel factories in Haiti, Jordan, Vietnam, and Nicaragua, we find evidence that asymmetric incentives between supervisors and workers and power asymmetries between supervisors and workers predict a higher concern with sexual harassment among workers. Increased competition among firms for workers reduces sexual harassment. The impact of organizational awareness is ambiguous. Awareness of sexual harassment by HR managers in Haiti, Jordan and Vietnam did not translate into an organizational norm that deterred sexual harassment. However, in Nicaragua, we observe a negative correlation between HR manager awareness of sexual harassment and its incidence. Tracing the impact of sexual harassment on output and worker and supervisor compensation levels, we demonstrate the cost in terms of forgone profits for firms in which sexual harassment is common.

The paper then turns to measuring the impact of an enterprise assessment social compliance program. Firms are assessed against domestic labor law and core labor standards. Employing a quasi-experimental approach, audits that include sexual harassment as part of the discrimination cluster are found to significantly reduce both reports of sexual harassment and its intensity in Vietnam, Indonesia and Jordan.

## I. INTRODUCTION

The efficiency properties of policies for improving working conditions in developing countries have been a focus of the international labor standards literature. Improved working conditions are beneficial for workers if they are able to work in a safer and cleaner environment, endure less sexual harassment or verbal abuse, and have more bargaining power over wages and other forms of compensation. However, it is not clear whether a factory benefits from compliance with international labor standards. While firms commonly view labor standards compliance as a cost, it is possible that improving working conditions will increase production efficiency and firm profits. Such an outcome could occur if firms in developing countries systematically adopt suboptimal labor management systems.

The first part of this paper explores whether tolerance of sexual harassment (SH) reduces profits in developing country apparel firms. A formal theoretical model is constructed with various incentive structures and punishment of workplace sexual harassment to characterize profit-maximizing working conditions. We draw on the social psychology literature to model the role of organizational norms and power asymmetries in the determination of sexual harassment and its impact on work outcomes.

The countries included in the analysis are Haiti, Jordan, Vietnam, and Nicaragua. The Better Work program, a partnership between the International Labour Organization (ILO) and the International Finance Corporation (IFC), has worked in collaboration with local and international stakeholders to design Better Work Haiti, Jordan, Vietnam, and Nicaragua. The project aims to improve competitiveness of the apparel industry by improving compliance with domestic labor law and the principles of the ILO Declaration on Fundamental Principles and Rights at Work in these countries (Better Work Haiti 1st Synthesis Report).

The paper then turns to analyze the impact of Better Work on the incidence of sexual harassment using a quasi-experimental approach. Firms are randomly assigned to an assessment month within a five month window and randomly assigned to a data collection in the months following an assessment.

## II. HUMAN RESOURCE MANAGEMENT SYSTEMS AND SEXUAL HARASSMENT

There are five aspects of the employment relationships studied in the field of personnel economics: (1) work incentives, (2) matching firms with workers, (3) compensation, (4) skill development, and (5) organization of work (Lazear and Oyer 2007). The analysis below focuses on the incentive and compensation structure, as well as the organization of work in a factory's human resources management system.

The structure of incentives is central to firm performance. Underlying a firm's choice between base salary and piece rate is a trade-off between risk in the form of compensation uncertainty and the incentive effect of piece rate pay. While piece rate pay rewards work effort, a firm may choose to offer hourly compensation to risk-averse employees (Lazear and Oyer 2007).

Firms choosing performance based pay have the added complication of monitoring effort and objectively assessing performance. Commonly, the performance of employees in developing countries is not based on objective evaluation, but rather on a supervisor's subjective measure of performance. Fama (1980), analyzing agency in a workplace, suggested that agents of management may incorrectly evaluate an employee's performance for their own benefits. Holmstrom (1999) analyzes how a person's future career consideration might affect his or her incentive to contribute effort and make decisions on the job. A subjective method for assessing performance may create an opportunity for *quid pro quo* sexual solicitation of a worker by a supervisor. A supervisor may solicit sexual favors as an implicit requirement for a strong performance evaluation. Workers, thinking about their future career, might choose to tolerate such behavior.

Theoretical analysis of a firm's incentive structure on an employee's work performance is supported by empirical work that demonstrates the positive impact of piece rate on productivity. Shearer (2004) employed a field experiment to assess a piece rate compensation structure and found a 20 percent increase in productivity when workers were paid by the piece rather than by wage or salary. Lazear (2000a) compared high-powered and low-powered schemes for supervisors. When a firm implements high-powered incentives, sorting effects lead managers to choose only profitable

projects. Similarly, Bandiera et al. (2007), using experimental methods, found that piece rate pay incentivizes supervisors to focus production support on their high productivity subordinates.

However, while piece rate pay will increase output, it does not necessarily increase profits. Freeman and Kleiner (2005) found a reduction in productivity but increase in profits when a piece rate incentive is removed.

One adverse effect of low-powered incentives for supervisors is the diversion of supervisor attention away from production to sexual solicitation of a subordinate (Brown et al. 2013). Sexual harassment is defined by Paludi and Barickman (1991) as bullying or coercion of a sexual nature, or the unwelcome or inappropriate promise of rewards in exchange for sexual favors. In a workplace environment, a demonstration of sexual interest may create a hostile or offensive environment that results in permanent pain to its victims. In developing country apparel firms, sexual harassment is widespread. The hierarchic environment consisting of male supervisors and female production workers is a contributing factor. Women are also more likely to be segregated into precarious employment characterized by low skill, low wages and low status employment with an immediate male supervisor, a situation common in apparel factories (Di Martino et al 2009).

Fitzgerald et al. (1997) develop a conceptual model of the causes and consequences of sexual harassment. In their framework, sexual harassment is modeled as a function of two conditions: organizational climate and job gender context. The outcomes of sexual harassment fall into three categories: job outcomes (satisfaction, job and work withdrawal), individual psychological outcomes (distress, trauma), and health outcomes (physical outcomes and health satisfaction). The empirical study supports this theoretical framework. Experiences of sexual harassment are positively correlated with the extent to which an organization tolerates sexual harassment in the workplace, as is the likelihood of working in a male dominated job context. Sexual harassment is directly related to job and psychological outcomes, but only indirectly correlated with health outcomes.

Given the sensitive nature of sexual harassment in the workplace, empirical testing is challenging. Participants may not be willing to divulge information about their sexual experiences at work and

overall satisfaction at work and the personality of the participant might also affect the research outcome.

A variety of research designs and sampling methods have been developed to avoid the above problems. Schneider et al. (1997) developed a stress framework for studying sexual harassment based on the conceptual framework of Fitzgerald et al. (1997). Following the stress and coping literature, Schneider et al. (1997) conceptualized sexual harassment as a workplace event that is appraised by the recipient as stressful. To study the negative psychological consequences of sexual harassment, they designed an experiment that separated the negative effects induced by possible variables other than sexual harassment. In their survey, they included questions to account for individual differences in sensitivity when determining the negative effects of sexual harassment. In addition, they included questions to measure the person's attitudes towards their job and their satisfaction at work.

Schneider et al. focus on a victim's manner of coping with and responding to sexual harassment. The sample included two independent groups: a private-sector organization and a large research-oriented university. All participants completed the "Workplace Environment Survey." The participants were informed that they would be asked about their job attitudes, job behavior, and a wide range of stressors that might occur on their job. Participants who reported experiencing sexual harassment over the preceding 24 months were asked to describe the incident and their coping strategy. The results suggest a negative relationship between sexual harassment and negative job-related and psychological outcomes. Additionally, harassed women in both samples exhibited similar outcomes, which implied that outcomes do not depend on work type. Further, this study provided evidence that the women who experienced sexual harassment were not necessarily "oversensitive" people.

Following Fitzgerald et al. (1997) and Schneider (1997), Willness et al. (2007) performed a meta-analysis of available data with respect to antecedents and consequences of workplace sexual harassment. Their findings are consistent with Fitzgerald et al. (1997) in that organizational context (organizational climate) and the job gender context both play an important role. Moreover, they characterized significant negative consequences from sexual harassment such as decreased job satisfaction, increased job withdrawal behavior, and harm to the mental and physical health of the

victims. As a consequence, reducing sexual harassment is seen as beneficial from a management or performance perspective.

Kisa et al. (2008) conducted sexual harassment research on nurses working in Turkish hospitals. Women in health care professions are primary targets of unwelcome sexual attention due to their subordinate positions and low status and power. The goal of the research was to test the hypothesis that sexual attention would decrease productivity of the nurses. The results indicate that sexual harassment is prevalent, with over half of victims reporting that their productivity was negatively affected.

Antecol and Cobb-Clark (2006) examined the relationship between sexual harassment and job satisfaction by sampling women from the U.S. military. They found that sexual harassment was associated with decreased job satisfaction and increased desire to leave the U.S. military. One criticism of the analysis is that the estimated relationship between sexual harassment and separation was biased upward since the authors did not control for the individual's unobserved, time-variant characteristics. When controlling for a woman's views about whether she has been sexually harassed, the positive relationship between sexual harassment and intent to leave the U.S. military was reduced.

Other research has found that sexual harassment is best predicted by the interaction of individual and situational factors (Pryor, Giedd, & Williams, 1995). Some individuals are more likely to harass than others; when it is easy to sexually harass, these individuals will take the opportunity. This individual factor is called Likelihood to Sexually Harass (LSH; Pryor, 1987), and is measured with a series of vignettes. Participants read about situations in which there is the potential for *quid pro quo* harassment and indicate how likely they would be to take advantage of that situation.

As described above, organizational tolerance is a key situational factor. Another study of women in the military found that women in units where the commanding officer was believed (by men and women) to tolerate or even encourage harassment were more likely to experience harassment; women with commanding officers who were not tolerant of sexual harassment were much less likely to experience it (Pryor et al., 1993).

Empirical work shows the interaction of these situational and individual factors. In one study, male college students were asked to help a woman learn one of two tasks—putting or poker. The high-LSH men (those who had indicated that they would take advantage of *quid pro quo* situations) were likely to act inappropriately, touching and talking to the woman in a sexual way—but only when they were teaching putting, which put them in close physical contact and gave them the opportunity to harass. When they were sitting across a table and teaching poker, they did not harass the woman. Low-LSH men, on the other hand, behaved appropriately in both situations. Thus, sexual harassment was most likely when both individual and situational factors allowed it (Pryor, 1987). Similarly, another study found that high-LSH men were more likely to harass a woman when they had seen a male experimenter behave sexually with her (flirting and leering). These men followed the norm that had been set, and touched and flirted with the woman while they were supposed to be training her on a computer task. Low-LSH men behaved professionally regardless of the example that had been set (Pryor et al., 1993). Again, both individual and situational factors were important in predicting harassment. When the structure of the interaction provides the opportunity to harass, or social norms indicate that harassment is accepted or encouraged, men who are predisposed to harass will do so.

Truskinovsky et al. (2013) analyzed a micro-data set of worker demographics and workplace characteristics in Haitian, Jordanian, and Indonesian apparel factories. They tested four hypotheses concerning the determinants of reports of sexual harassment. These include the vertical alignment of incentives within the factory, the level of organizational awareness, sexual harassment as a form of worker discipline, and sexual harassment as a form of supervisor compensation. Sexual harassment arises primarily in factories in which supervisors are charged with assessing the individual work performance of their subordinates for the determination of production-related pay incentives. They found that sexual favors as a form of bribery for a positive work-effort report is more common in factories with low organizational awareness, as reflected in the human resource manager's perception of sexual harassment as a concern, and supervisor training. Sexual harassment was also more common in factories lacking nearby competitors, suggesting that intensified competition among factories for labor deters sexual harassment (Truskinovsky et al. 2013, page 1).

### III. A THEORETICAL MODEL OF SEXUAL HARASSMENT

While the empirical analysis of Truskinovsky et al. (2013) is suggestive, their analysis is not undertaken in the context of a formal model. Turning to the theoretical framework, we employ a 3-tiered model in which there are three agents: a manager, a supervisor, and a worker. The role of the manager is to maximize profits, determine the wage for the supervisor and worker, and choose a deterrent to sexual harassment in the form of a punishment. The role of the supervisor is to oversee the worker and choose the amount of sexual harassment. The role of the worker is to choose the amount of work effort contributed to production.

Our objective is to characterize the profit-maximizing incentive structure. The results will in turn suggest possible interventions aimed at reducing the occurrence of sexual harassment in the factory. The optimization problem for the factory is analyzed under three different but typical cases of incentive structure: (1) piece rate, (2) salary, and (3) deterrent of sexual harassment.

We assume that the worker and supervisor maximize utility within the incentive structure chosen by the manager. The factory manager maximizes profits subject to technology, output price and the participation constraints of both the worker and supervisor. The income for the worker is determined by a fixed income  $\alpha$  and piece rate  $\beta$ . The income for the supervisor is also determined by a fixed income  $\delta$ , piece rate  $\gamma$ , and the negative deterrent ( $t$ ) of sexual harassment.

To allow for empirical determination of the impact of sexual harassment on productivity, we assume that sexual harassment might have a positive or negative effect on factory production. Factory output ( $q$ ) is the consequence of the worker's effort ( $e$ ) minus the amount of sexual harassment ( $z$ ) multiplied by a productivity parameter  $\theta$  that represents the positive or negative effect of sexual harassment on output. That is,

$$(1) \quad q = \min\{k, e - \theta z\}.$$

The total cost function is given by  $TC = TC(q, \alpha, \beta, \gamma, \delta, r)$ , where  $r$  is the expenditure on one unit of capital ( $k$ ).

The participation constraint for workers is

$$(2) \quad (\alpha + \beta q)(\bar{z} - z)(\bar{e} - e) \geq z^\sigma \bar{U}_w,$$

where the left hand side of the constraint is the utility function for workers,  $(\bar{z} - z)$  reflects the disutility from sexual harassment, and  $(\bar{e} - e)$  reflects the disutility from work.  $\bar{U}_w$  is the reservation utility, the utility obtainable in the next best alternative. If workers cannot realize  $\bar{U}_w$  at work, they will choose to quit.  $\bar{U}_w$  is multiplied by  $z^\sigma$  to reflect the possibility that a worker's perception of alternative opportunities may be affected by sexual harassment. If sexual harassment decreases a worker's ability to react, then their reservation utility, the right hand side of the constraint, will be lower. Workers will choose the amount of effort ( $e$ ) to maximize utility in equation (1) subject to the incentive structure established by the manager.

The participation constraint for supervisors is

$$(3) \quad (\delta + \gamma q - tz)z - (\hat{p}z_n - z)^2 \geq \bar{U}_s,$$

where the left hand side of the constraint is the utility function for supervisors from factory work. It includes three parts: money income, sexual gratification, and deviation of sexual harassment from a perceived norm. The first part  $(\delta + \gamma q)$  is the money income for supervisors and  $tz$  is the dollar value equivalent to the supervisor of the deterrent action taken by the firm to suppress sexual harassment. The total money compensation for the supervisor is then  $(\delta + \gamma q - tz)$ , which is multiplied by the amount of sexual harassment ( $z$ ) to reflect the supervisor's gain in utility from sexual harassment.

The second part  $(\hat{p}z_n - z)^2$  is a social psychological factor that reflects disutility arising from deviation from the perceived social norm related to sexual harassment. The perception of the norm,  $z_n$ , is affected by the supervisor's sense of power,  $\hat{p}$ . It reflects the cultural phenomenon or tolerance of sexual harassment within the factory.  $(z_n - z)$  measures how far the supervisor's actual sexual harassment behavior is from the norm.  $\hat{p}z_n$  is the supervisor's own perception of the norm. The chosen functional form indicates that power magnifies the supervisor's perceived social tolerance of

sexual harassment, as we assume that the more power a supervisor has, the higher the amount of sexual harassment will be perceived as the norm. In other words, the power of the supervisor changes how he perceives  $(z_n - z)$ , the difference between his actual level of sexual harassment and the social norm. If  $(pz_n - z) \neq 0$ ,  $(\hat{p}z_n - z)^2$  measures the mental discomfort of the supervisor as the level of  $z$  rises above or falls below the perceived norm of acceptable behavior.

$\bar{U}_s$  is the reservation utility of the supervisor. If realized utility is less than  $\bar{U}_s$ , the supervisor will choose to quit. The supervisor chooses the amount of sexual harassment  $z$  by maximizing (2) subject to the incentive structure implemented by the manager.

Factory profits are the consequence of output times the price of output ( $p$ ) plus revenue from the fine on sexual harassment minus total factor cost. The profit function for the manager is

$$(4) \quad \pi = pq + tz - (\alpha + \beta q) - (\delta + \gamma q) - rk,$$

where  $pq$  is production revenue,  $(\alpha + \beta q)$  is the worker's income,  $(\delta + \gamma q)$  is the supervisor's income, and  $rk$  is the capital expenditure. The output market is assumed to be perfectly competitive, implying price-taking by the firm. Managers will choose  $\alpha$ ,  $\beta$ ,  $\delta$ ,  $\gamma$ , and  $t$  to maximize profits given by equation (3) subject to the worker's and supervisor's participation constraints.

The analysis focuses on two questions. First, do misaligned incentives within the firm promote sexual harassment that lowers firm profits? The second is: what are the roles that deterrents to sexual harassment in the form of punishment, norms, and power play in achieving the profit-maximizing level of sexual harassment? To simplify the solution, we first assume that piece rate ( $\beta$ ) for the worker is equal to zero. We begin by assuming that the factory does not deter sexual harassment through  $t$ ,  $z_n$  or  $\hat{p}$ . We then turn to the case in which supervisor pay incentives are misaligned with the manager, but punishment on sexual harassment is introduced.

**Case I:  $\beta = 0$ ,  $\gamma > 0$ ,  $t = 0$**

When  $\beta = 0$ , there is no link between work effort and pay for the worker. Rather, we assume that the worker will only exert  $e_0$  effort, which is the minimum amount of effort required to earn the base rate income  $\alpha$ . So,  $e$  is given by

$$(5) \quad e = e_0.$$

Since  $q = e - \theta z$ , we have  $q = e_0 - \theta z$ .

The supervisor chooses actual  $z$  to maximize utility by solving the program

$$(6a) \quad \max_{\{z\}} U_s = (\delta + \gamma q)z - (\hat{p}z_n - z)^2$$

which yields first order condition

$$(6b) \quad \frac{\partial U_s}{\partial z} = -2(1 + \gamma\theta)z + 2\hat{p}z_n + \delta + \gamma e_0 = 0$$

and utility maximizing sexual harassment

$$(6c) \quad z = \frac{2\hat{p}z_n + \delta + \gamma e_0}{2(1 + \gamma\theta)}$$

which can be rewritten as

$$(6c') \quad \delta = 2z(1 + \gamma\theta) - 2\hat{p}z_n - \gamma e_0.$$

When solving the manager's problem with the *Lagrange* method, the worker's participation constraint requires that the manager set the compensation for the worker high enough to achieve the reservation utility. The worker's reservation utility constraint is binding if the *Lagrange* multipliers are nonzero. Substituting (5) into (2) yields an inequality that constrains the manager's choice of  $\alpha$ :

$$(7) \quad z^\sigma \bar{U}_w \leq \alpha(\bar{e} - e_0)(\bar{z} - z) = \bar{e}\alpha(\bar{z} - z), \quad \text{where} \quad \bar{e} = \bar{e} - e_0.$$

Similarly for the supervisor constraint, by substituting (5c') for  $\delta$  and substituting into (5a), the constraint on the utility of the supervisor is given by

$$(8) \quad \bar{U}_s \leq [\delta + \gamma(e_0 - \theta z)]z - (\hat{p}z_n - z)^2 = (\gamma\theta + 1)z^2 - (\hat{p}z_n)^2.$$

The base rate for workers ( $\alpha$ ), piece rate for supervisors ( $\gamma$ ), and the amount of sexual harassment ( $z$ ) is determined by the solution to

$$(9) \quad \max_{\{\alpha, \gamma, z\}} \pi = pq - \alpha - (\delta + \gamma q) - rk$$

subject to (7) and (8).

The first order conditions for maximizing (9) subject to (7) and (8) are given by

$$(10a) \quad \frac{\partial \pi}{\partial \alpha} = -1 - \lambda_1 \bar{e}(\bar{z} - z) = 0$$

which can be rewritten as

$$(10a') \quad \lambda_1 = -\frac{1}{\bar{e}(\bar{z} - z)},$$

$$(10b) \quad \frac{\partial \pi}{\partial \gamma} = -\theta z - \lambda_2 \theta z^2 = 0$$

which can be rewritten as

$$(10b') \quad \lambda_2 = -\frac{1}{z},$$

$$(10c) \quad \frac{\partial \pi}{\partial \lambda_1} = z^\sigma \bar{U}_w - \alpha \bar{e}(\bar{z} - z) = 0$$

which can be rewritten as

$$(10c') \quad \alpha = \frac{z^\sigma \bar{U}_w}{\bar{e}(\bar{z} - z)},$$

$$(10d) \quad \frac{\partial \pi}{\partial \lambda_2} = \bar{U}_s - (\gamma\theta + 1)z^2 + (\hat{p}z_n)^2 = 0$$

which can be rewritten as

$$(10d') \quad \gamma = \frac{\bar{U}_s - z^2 + (\hat{p}z_n)^2}{\theta z^2},$$

and

$$(10e) \quad \frac{\partial \pi}{\partial z} = -p\theta - \gamma\theta - 2 + \lambda_1 \sigma z^{\sigma-1} \bar{U}_w + \lambda_1 \bar{e} \alpha - 2\lambda_2(\gamma\theta + 1)z = 0$$

where  $\lambda_1$  and  $\lambda_2$  are Lagrange multipliers for the constraints in equations (7) and (8). From (10a') and (10b'),  $\lambda_1$  and  $\lambda_2$  will not be equal to zero. Hence the constraints (7) and (8) bind with equality.

By substituting (10a'), (10b'), (10c'), and (10d') into (10e), the first order condition for maximizing  $\pi$  with respect to  $z$  is given by

$$(10e') \quad \frac{\partial \pi}{\partial z} = -p\theta - \frac{\sigma z^{\sigma-1} \bar{U}_w}{\bar{e}(\bar{z} - z)} - \frac{z^\sigma \bar{U}_w}{\bar{e}(\bar{z} - z)^2} + \frac{\bar{U}_s}{z^2} + \left(\frac{\hat{p}z_n}{z}\right)^2 - 1 = 0.$$

From equation (10e') above, we can observe the following relationships:

- When  $\bar{e}$  increases,  $z$  increases. A fall in the disutility of effort raises sexual harassment.
- When  $\bar{U}_w$  increases,  $z$  decreases. A rise in the worker's reservation utility lowers sexual harassment.
- When  $\bar{U}_s$  increases,  $z$  increases. A rise in the supervisor's reservation utility raises sexual harassment.

- d. When the perceived tolerance for sexual harassment rises either because of a relaxation in the norm,  $z_n$ , or a rise in the power asymmetry between the supervisor and the worker,  $\hat{p}$ , sexual harassment increases.

**Case II:  $\beta = 0, \gamma = 0, t > 0$**

We now turn to the case in which both the worker's and supervisor's pay incentives are misaligned with the firm, but the firm chooses a deterrent to sexual harassment in the form of a punishment. Our solution strategy is the same as in Case I. Workers continue to exert effort  $e_0$ , which is the minimum amount of effort to earn the base rate income  $\alpha$ . So  $e$  is given by (4),  $e = e_0$ .

The supervisor chooses actual  $z$  to maximize utility by solving the program

$$(11a) \quad \max_{\{z\}} U_s = (\delta - tz)z - (\hat{p}z_n - z)^2$$

which yields first order condition

$$(11b) \quad \frac{\partial U_s}{\partial z} = \delta + 2\hat{p}z_n - 2z(1 + t) = 0$$

and utility maximizing sexual harassment

$$(11c) \quad z = \frac{\delta + 2\hat{p}z_n}{2(1+t)}.$$

Equation (11c) can be inverted to solve for the tax rate

$$(11c') \quad t = \frac{\delta + 2\hat{p}z_n - 2z}{2z}.$$

From (11c), we know that sexual harassment is constrained by the tax and the norm. Under misaligned incentives for the supervisor and no punishment on sexual harassment, the amount of sexual harassment will still be constrained by the norm.

To maximize profits, managers must set the compensation for workers at least high enough to achieve the reservation utility. Substituting (4) into (1) yields an equation that constrains  $\alpha$ :

$$(12) \quad z^\sigma \bar{U}_w \leq \alpha(\bar{e} - e_0)(\bar{z} - z) = \bar{e}\alpha(\bar{z} - z), \quad \text{where} \quad \bar{e} = \bar{e} - e_0.$$

Similarly for the supervisor, substituting (10c) for  $t$  and substituting into (10a), the reservation utility of supervisors is given by

$$(13) \quad \bar{U}_s \leq \frac{\delta}{2}z + \hat{p}z_n z - (\hat{p}z_n)^2.$$

The base rate for workers ( $\alpha$ ), base rate for supervisors ( $\delta$ ), and the amount of sexual harassment ( $z$ ) is determined by the solution to

$$(14) \quad \max_{\{\alpha, \delta, z\}} \pi = pq + tz - \alpha - \delta - rk$$

subject to (12) and (13).

Formally, the firm is choosing the incentive structure,  $\alpha, \delta$ , and  $t$ . However, in choosing  $\delta$  and  $t$ , the manager is implicitly choosing  $z$  as governed by equation (11c). The maximization problem given by equation (14) is more easily solved for  $\alpha, \delta$ , and  $z$ , hence the reformulation of the manager's decision problem as reflected in (14).

The first order conditions for maximizing (14) subject to (12) and (13) are given by

$$(15a) \quad \frac{\partial \pi}{\partial \alpha} = -1 - \lambda_1 \bar{e}(\bar{z} - z) = 0$$

which is rewritten as

$$(15a') \quad \lambda_1 = -\frac{1}{\bar{e}(\bar{z} - z)},$$

$$(15b) \quad \frac{\partial \pi}{\partial \delta} = -1 - \lambda_2 \frac{z}{2} = 0$$

which is rewritten as

$$(15b') \quad \lambda_2 = -\frac{2}{z},$$

$$(15c) \quad \frac{\partial \pi}{\partial \lambda_1} = z^\sigma \bar{U}_w - \alpha \bar{e}(\bar{z} - z) = 0$$

which is rewritten as

$$(15c') \quad \alpha = \frac{z^\sigma \bar{U}_w}{\bar{e}(\bar{z} - z)},$$

$$(15d) \quad \frac{\partial \pi}{\partial \lambda_2} = \bar{U}_s - \frac{\delta}{2}z - \hat{p}z_n z + (\hat{p}z_n)^2 = 0$$

which is rewritten as

$$(15d') \quad \delta = \frac{2[\bar{U}_s - \hat{p}z_n z + (\hat{p}z_n)^2]}{z}$$

and

$$(15e) \quad \frac{\partial \pi}{\partial z} = -p\theta + \lambda_1 \sigma Z^{\sigma-1} \bar{U}_w + \lambda_1 \bar{e} \alpha - \lambda_2 \left( \frac{\delta}{z} - \hat{p}z_n \right) = 0$$

where  $\lambda_1$  and  $\lambda_2$  are *Lagrange* multipliers for the constraints in equations (12) and (13). From (15a') and (15b'),  $\lambda_1$  and  $\lambda_2$  will not be equal to zero. Hence the constraints (12) and (13) hold with equality.

By substituting (14a'), (14b'), (14c'), and (14d') into (14e), the first order condition of  $\pi$  with respect to  $z$  is given by

$$(15e') \quad \frac{\partial \pi}{\partial z} = -p\theta - \frac{\sigma Z^{\sigma-1} \bar{U}_w}{\bar{e}(\bar{z}-z)} - \frac{z^\sigma \bar{U}_w}{\bar{e}(\bar{z}-z)^2} + \frac{2\bar{U}_s}{z^2} + 2\left(\frac{\hat{p}z_n}{z}\right)^2 = 0.$$

When comparing Case I and II, the  $z$  solved from equation (15e') ( $\gamma = 0, t > 0$ ) is higher than the  $z$  solved from equation (10e') ( $\gamma > 0, t = 0$ ).<sup>1</sup> It implies that active policies or programs such as a tax directly targeting sexual harassment are not as effective as aligning supervisor's pay incentive to combat sexual harassment. The interpretation is that the tax or fine on sexual harassment will lower the supervisor's income, resulting in the factory not being able to satisfy the supervisor's reservation utility at the current level of compensation. To compensate for the negative impact on the supervisor's utility, the factory is forced to allow a certain amount of sexual harassment to maintain the current supervisor's employment.

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<sup>1</sup> Equation (10e') and (15e') share the same terms expect for the term  $\frac{2\bar{U}_s}{z^2} + 2\left(\frac{\hat{p}z_n}{z}\right)^2$  in equation (15e') and the term  $\frac{\bar{U}_s}{z^2} + \left(\frac{\hat{p}z_n}{z}\right)^2 - 1$  in equation (10e'). Since  $\frac{2\bar{U}_s}{z^2} + 2\left(\frac{\hat{p}z_n}{z}\right)^2 > \frac{\bar{U}_s}{z^2} + \left(\frac{\hat{p}z_n}{z}\right)^2 - 1$ , the  $z$  solved from equation (15e') is higher than that solved from equation (10e'). It is solved by indirect comparison method between the two equations rather than directly solving out  $z$  from either equation. Specifically, the equation with a higher positive term will require a higher negative term in absolute value to compensate in order to get the equation equal to zero. Both equations have negative term with  $(\bar{z} - z)$  in the denominator. A higher negative term implies a lower denominator  $(\bar{z} - z)$  and hence a higher  $z$ . In short, a higher positive term in the equation implies a higher value of  $z$ .

**Case III:  $\beta = 0, \gamma > 0, t > 0$ .**

We now turn to the case in which the supervisor's pay incentives are aligned with the firm but the worker's are not. Our solution strategy is the same as in Cases I and II. The worker continues to exert effort  $e_0$ , which is the minimum amount of effort to earn the base rate income  $\alpha$ . So,  $e$  is given by  $e = e_0$ , is in equation (5).

However, the supervisor's pay incentives are now aligned with the interest of the manager. As a consequence, the amount of sexual harassment is determined by the solution to

$$(16) \quad \max_{\{z\}} [\gamma(e_0 - \theta z) - tz]z - (\hat{p}z_n - z)^2.$$

The first order condition for the program in (16) is given by

$$(17) \quad \frac{\partial U_s}{\partial z} = 0.$$

From (17), the optimal level of  $z$  in terms of  $t$  is given by

$$(18) \quad z = \frac{2\hat{p}z_n + \gamma e_0}{2 + 2t + 2\gamma\theta}.$$

Inverting equation (17),  $t$  in terms of  $z$  is given by

$$(18') \quad t = \frac{\gamma e_0 + 2\hat{p}z_n - 2z - 2\gamma\theta z}{2z}.$$

The worker's participation constraint is given by

$$(19) \quad z^\sigma \bar{U}_w \leq \alpha(\bar{e} - e_0)(\bar{z} - z) = \bar{e}\alpha(\bar{z} - z), \quad \text{where} \quad \bar{e} = \bar{e} - e_0$$

and the supervisor's participation constraint is given by

$$(20) \quad \bar{U}_s \leq [\gamma(e_0 - \theta z) - tz]z - (\hat{p}z_n - z)^2.$$

By substituting (18') into (20) to eliminate  $t$ , we obtain

$$(21) \quad \bar{U}_s \leq \frac{\gamma e_0}{2}z + \hat{p}z_n z - (\hat{p}z_n)^2.$$

The internal solution for the worker's base rate ( $\alpha$ ), the supervisor's piece rate ( $\gamma$ ), and the amount of sexual harassment ( $z$ ) is determined by the solution to

$$(22) \quad \max_{\{\alpha, \gamma, z\}} \pi = pq + tz - \alpha - \gamma q - rk$$

subject to (19) and (21).

The first order conditions for maximizing (22) subject to (19) and (21) are given by

$$(22a) \quad \frac{\partial \pi}{\partial \alpha} = -1 - \lambda_1 \bar{e}(\bar{z} - z) = 0$$

which is rewritten as

$$(22a') \quad \lambda_1 = -\frac{1}{\bar{e}(\bar{z} - z)},$$

$$(22b) \quad \frac{\partial \pi}{\partial \gamma} = -(e_0 - \theta z) - \lambda_2 \frac{e_0}{2} z = 0$$

which is rewritten as

$$(22b') \quad \lambda_2 = 2\left(\frac{\theta}{e_0} - \frac{1}{z}\right),$$

$$(22c) \quad \frac{\partial \pi}{\partial \lambda_1} = z^\sigma \bar{U}_w - \alpha \bar{e}(\bar{z} - z) = 0$$

which is rewritten as

$$(22c') \quad \alpha = \frac{z^\sigma \bar{U}_w}{\bar{e}(\bar{z} - z)},$$

$$(22d) \quad \frac{\partial \pi}{\partial \lambda_2} = \bar{U}_s - \frac{\gamma e_0}{2} z - \hat{p} z_n z + (\hat{p} z_n)^2 = 0$$

which is rewritten as

$$(22d') \quad \gamma = \frac{2[\bar{U}_s - \hat{p} z_n z + (\hat{p} z_n)^2]}{z e_0},$$

and

$$(22e) \quad \frac{\partial \pi}{\partial z} = -p\theta + \gamma\theta + \lambda_1 \sigma z^{\sigma-1} \bar{U}_w + \lambda_1 \alpha \bar{e} - \lambda_2 \frac{\gamma e_0}{2} - \lambda_2 \hat{p} z_n = 0$$

where  $\lambda_1$  and  $\lambda_2$  are *Lagrange* multipliers for the constraints in equations (19) and (21). From (22a') and (22b'),  $\lambda_1$  and  $\lambda_2$  will not be equal to zero. Hence the constraints (19) and (21) hold with equality.

By substituting (22a'), (22b'), (22c'), and (22d') into (22e), the first order condition of  $\pi$  with respect to  $z$  is given by

$$(22e') \quad \frac{\partial \pi}{\partial z} = -p\theta - \frac{\sigma z^{\sigma-1} \bar{U}_w}{\bar{e}(\bar{z} - z)} - \frac{z^\sigma \bar{U}_w}{\bar{e}(\bar{z} - z)^2} + \frac{2\bar{U}_s \theta}{z e_0} + 2\hat{p} z_n \left[ \frac{\hat{p} z_n \theta}{z e_0} + \frac{1}{z} - \frac{2\theta}{e_0} \right] = 0.$$

We now compare Case III with Case I and II separately. When comparing Case III and I, we subtract equation (22e') from (10e') to obtain

$$(23) \quad \frac{\bar{U}_s}{z^2} + \left(\frac{\hat{p} z_n}{z}\right)^2 - 1 - \frac{2\bar{U}_s \theta}{z e_0} - 2\hat{p} z_n \left[ \frac{\hat{p} z_n \theta}{z e_0} + \frac{1}{z} - \frac{2\theta}{e_0} \right]$$

$$\begin{aligned}
&= \frac{\bar{U}_s}{z} \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) + \left( \frac{\hat{p}z_n}{z} \right)^2 - 1 + \frac{4\hat{p}z_n\theta}{e_0} - \frac{2(\hat{p}z_n)^2\theta}{e_0z} - \frac{2\hat{p}z_n}{z} \\
&= \frac{\bar{U}_s}{z} \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) + \frac{(\hat{p}z_n)^2}{z} \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) + 2\hat{p}z_n \left( \frac{2\theta}{e_0} - \frac{1}{z} \right) - 1 \\
&= \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} - 2\hat{p}z_n \right] - 1.
\end{aligned}$$

The  $z$  solved from Case III will be lower than that from Case I if equation (23) is greater than zero:

$$(24) \quad \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} - 2\hat{p}z_n \right] - 1 > 0$$

which is rewritten as

$$(24') \quad \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} - 2\hat{p}z_n \right] > 1 > 0.$$

The necessary condition to satisfy equation (24') is given by

$$(25) \quad \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) > 0, \text{ which can be rewritten as}$$

$$(25') \quad e_0 > 2\theta z$$

and

$$(26) \quad \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} - 2\hat{p}z_n \right] > 0, \text{ which can be rewritten as}$$

$$(26') \quad \bar{U}_s + (\hat{p}z_n)^2 > 2\hat{p}z_n z.$$

The other possible necessary condition to satisfy equation (24') is given by

$$(27) \quad \left( \frac{1}{z} - \frac{2\theta}{e_0} \right) < 0, \text{ which is simplified to be}$$

$$(27') \quad e_0 < 2\theta z$$

and

$$(28) \quad \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} - 2\hat{p}z_n \right] < 0, \text{ which is simplified to be}$$

$$(28') \quad \bar{U}_s + (\hat{p}z_n)^2 < 2\hat{p}z_n z.$$

When comparing Case III and II, we subtract equation (22e') from (15e') to obtain

$$\begin{aligned}
(29) \quad & \frac{2\bar{U}_s}{z^2} + 2 \left( \frac{\hat{p}z_n}{z} \right)^2 - \frac{2\bar{U}_s\theta}{ze_0} - 2\hat{p}z_n \left[ \frac{\hat{p}z_n\theta}{ze_0} + \frac{1}{z} - \frac{2\theta}{e_0} \right] \\
&= \frac{2\bar{U}_s}{z} \left( \frac{1}{z} - \frac{\theta}{e_0} \right) + 2 \left( \frac{\hat{p}z_n}{z} \right)^2 + \frac{4\hat{p}z_n\theta}{e_0} - \frac{2(\hat{p}z_n)^2\theta}{e_0z} - \frac{2\hat{p}z_n}{z}
\end{aligned}$$

$$\begin{aligned}
&= \frac{2\bar{U}_s}{z} \left( \frac{1}{z} - \frac{\theta}{e_0} \right) + 2 \frac{(\hat{p}z_n)^2}{z} \left( \frac{1}{z} - \frac{\theta}{e_0} \right) + 2\hat{p}z_n \left( \frac{2\theta}{e_0} - \frac{1}{z} \right) \\
&= 2 \left( \frac{1}{z} - \frac{\theta}{e_0} \right) \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} \right] + 2\hat{p}z_n \left( \frac{2\theta}{e_0} - \frac{1}{z} \right).
\end{aligned}$$

The  $z$  solved from Case III will be lower than that from Case II if equation (29) is greater than zero:

$$(30) \quad 2 \left( \frac{1}{z} - \frac{\theta}{e_0} \right) \left[ \frac{\bar{U}_s}{z} + \frac{(\hat{p}z_n)^2}{z} \right] + 2\hat{p}z_n \left( \frac{2\theta}{e_0} - \frac{1}{z} \right) > 0.$$

The necessary and sufficient conditions to satisfy equation (30) are given by

$$(31) \quad \left( \frac{1}{z} - \frac{\theta}{e_0} \right) > 0, \text{ which is written as}$$

$$(31') \quad e_0 > z\theta$$

and

$$(32) \quad \left( \frac{2\theta}{e_0} - \frac{1}{z} \right) > 0, \text{ which is written as}$$

$$(32') \quad e_0 < 2z\theta.$$

Condition (31') and (32') together place upper and lower bounds on  $e_0$ .

$$(33) \quad z\theta < e_0 < 2z\theta.$$

The findings above lead to several conclusions. First, sexual harassment will exceed the profit-maximizing level if the firm does not align the supervisor's interests with the firm. It is clear from equation (6c) that absent any deterrence on the part of the firm, sexual harassment chosen by the supervisor is bounded only by the supervisor's own perception of the organizational norm. Such an outcome will occur if the manager is not aware of the presence of sexual harassment in the factory, the negative consequences of sexual harassment on productivity, and/or the adverse impact on the worker's participation constraint.

Second, a program directly targeting sexual harassment by the supervisor will produce higher profits and less sexual harassment. The reason is that such a program eliminates the negative effect on worker's participation constraint due to sexual harassment by the supervisor.

Third, the firm can align the supervisor's incentives with the factory by introducing production-linked pay for supervisor. The structure is more effective in reducing sexual harassment than a program

directly targeting sexual harassment by the supervisor. The reason is that with such a structure, the manager is internalizing the negative effect that sexual harassment has on productivity into the optimizing choice of the supervisor.

Finally, to the extent that the firm is unaware of the negative consequence of sexual harassment on firm profits, a monitoring program that requires the firm to introduce a sexual harassment deterrence program and production-linked pay system for supervisors will move sexual harassment down, thereby increasing firm profits.

#### **IV. THE EMPIRICAL STRATEGY**

From the insights of the theoretical model, we are interested in testing the role of the pay incentive structure for both supervisors and workers, norms of behavior, and power in determining the level of sexual harassment in a factory. We would like to further explore whether firm tolerance of sexual harassment is lowering firm profits. The effect of sexual harassment on profits depends on whether (1) sexual harassment has a positive or negative productivity effect ( $\theta$  positive or negative), (2) the impact of sexual harassment on the workers' reservation wage ( $z^\sigma \bar{U}_w$  increasing or decreasing in  $z$ ) and (3) whether the supervisor perceives the opportunity to solicit sexual favors as a form of compensation.

The assessment strategy on firm profits is depicted in Figure 1. Consider first whether sexual harassment has a negative or positive impact on worker productivity. If the impact is negative, we turn next to the impact that sexual harassment has on a worker's intent to quit. If sexual harassment lowers productivity and increases the probability of quitting, then the only benefit to the firm from tolerating sexual harassment is if supervisors are willing to accept the opportunity to solicit sexual favors as a form of compensation.

However, before analyzing the effect of sexual harassment on firm performance, we perform a preliminary exploration into the role of compensation structure, power, and organizational norms on sexual harassment in the factory as directed by equation (34) below. The structure of compensation

includes the base and piece rate for workers and supervisors and a measure of norms in the factory. Norms are measured by the awareness on the part of the HR manager that sexual harassment is a concern for workers in the factory. Controls introduced into the equation are the presence of nearby competitors and individual characteristics including position, gender, age, and education.

$$(34) z_{ij} = \beta_0 + \beta_1\alpha_j + \beta_2\beta_j + \beta_3\delta_j + \beta_4\gamma_j + \beta_6NearbyCompetitor_j + \sum_{i=1}^n \mu_i DemographicalCharacteristics_{i,j} + \beta_7HRawareness_j + \epsilon,$$

where  $i$  indicates an individual worker and  $j$  indicates factory.

We then turn to the impact of sexual harassment on firm output and profits as directed by equation (35). Output is taken to be a function of sexual harassment, capital and hours worked. In order to control for fact that sexual harassment is endogenous, we instrument  $z$  with its predicted value,  $\hat{z}$ , from equation (34).

$$(35) Output_j \text{ or } Profits_j = \mu_0 + \mu_1\hat{z}_j + \mu_2k_j + \mu_3e_j + \epsilon.$$

## V. DATA DESCRIPTION

Data are obtained from the impact evaluation of Better Work. Workers and managers in enrolled factories in Haiti, Vietnam, Jordan, and Nicaragua completed surveys during the period 2010-2014 on work practices and outcomes. Summary statistics are presented in Tables 1-4.

**Sexual harassment.** Sexual harassment is measured by asking each worker whether sexual harassment is a concern for workers in their factory. Workers concerned with sexual harassment are additionally asked to indicate remedial action taken. The coding is as follows:

1=no concern

2=yes concern, discussed with co-workers

3=yes concern, discussed with supervisor or manager

4=yes concern, discussed with trade union representative

5=yes concern, considered quitting

6=yes concern, nearly caused a strike

7=yes concern, caused a strike.

Participants were also offered the opportunity to decline to answer either because they do not want to or because they do not know.

In Haiti, 52 percent of the workers (n=412) responded to the sexual harassment question. Of these, 39 percent of the respondents (n=159) report that sexual harassment is a concern. The average action code is 1.9, indicating that workers either discussed sexual harassment with their co-workers, a supervisor, or a manager. In Vietnam, 94 percent of the workers (n=4634) responded to this question, and 0.02 percent of the respondents (n=112) report sexual harassment to be a concern. The average response code is 2.3, indicating that workers either discussed sexual harassment with their co-workers, a supervisor, a manager, or with the trade union representative. In Jordan, 69 percent of the workers (n=717) responded to this question, and 30 percent of the respondents (n=244) report sexual harassment to be a concern. The average action code is 2.5, which indicates that workers principally discussed sexual harassment with co-workers, supervisors or managers. Additionally, 14.75 percent of workers considered quitting as a reaction to sexual harassment. In Nicaragua, 63 percent of the workers (n=103) responded to this question, and 30 percent of the respondents (n=34) report sexual harassment to be a concern. The average action code is 2.1.

**Organizational Awareness.** Organizational awareness and tolerance are important factors in determining sexual harassment in apparel factories. The HR manager in each factory was asked, “Is sexual harassment a concern for workers in this factory?” Response options available to HR managers are identical to those available to workers. A positive response to this question can be interpreted as an indicator of organizational awareness. However, organizational awareness does not necessarily translate into an organizational norm.

**Informant Index.** The sexual harassment question was deliberately worded in such a way as to not require a respondent to report on his or her own experiences of sexual harassment. As a consequence, a positive or negative report may simply reflect the willingness of a participant to voice

rather than an indication that the respondent had actually experienced an episode of sexual solicitation or violence. In fact, as will be seen below, gender is not generally a predictor of a positive report, and when it is, the respondent is often male with high status in the factory.

In order to control for individual characteristics that predispose a participant to provide a positive response we introduce an informant index that measures the probability of reporting concern by the participant when given the opportunity. The participants were asked 12 questions about concerns with work hours, pay, and working conditions. We divide the sum of individual participants' reported concerns over the average worker's concerns to indicate his/her personal disposition to voice concerns as compared with the others in the same factory. The informant is computed as

$$(24) \text{InformantIndex}_{i,j} = \frac{\sum_{q=1}^{12} C_{q,i}}{\sum_{q=1}^{12} \sum_{i=1}^n C_{q,i}/n}$$

where  $\text{InformantIndex}_{i,j}$  is the informant index of worker  $i$  in factory  $j$ ,  $C_{q,i}$  is a dummy variable of worker  $i$ 's response to question  $q$ , and  $n$  is the total number of workers in factory  $j$ . Table 2 reports that the average informant index for Vietnam is 0.3.

**Incentive Structure.** The theoretical model indicates that the occurrence of sexual harassment might be due to the misaligned incentives between the supervisor and the factory. We expect higher reports on sexual harassment concern in the case of high-power incentive for the worker along with low-powered incentive for the supervisor.

The following variables measure the pay incentive structure of the worker and the supervisor.

- Supervisor incentive pay - worker. The HR manager estimate of the percent of a supervisor's pay that is based on the performance of the workers he or she supervises.
- Supervisor incentive pay – production line. The HR manager estimate of the percent of a supervisor's pay that is based on line production incentives.
- Supervisor incentive pay - production bonus. The HR manager estimate of the percent of a supervisor's pay that is based on an individual production bonus.
- Supervisor incentive pay - piece rate. The HR manager estimate of the percent of a supervisor's pay that is based on piece rate pay.

- Worker's incentive pay measured by production target. A binary variable coded 1 if the worker reports that the supervisor sets a production target.
- Worker's incentive pay measured by productivity bonus. A binary variable coded 1 if the worker reports that he/she receives bonus for his/her own productivity.

**Labor Market Competition.** In the theoretical model, the perception of alternative work opportunities for workers is a significant determinant of sexual harassment. The competitiveness of the labor market is indicated by the number of nearby competitors and the perception by the General Manager that high turnover is a source of poor firm performance. The General Manager is asked how many other apparel firms are within one kilometer of the factory. The General Manager is also surveyed on the perception of various sources of poor firm performance, including concern about turnover.

**Power.** We do not have a direct measure of the power imbalance between workers and supervisors. However, relative compensation of workers and supervisors is one indication of relative power. A high average compensation for supervisors relative to workers is indicative of a hierarchical structure in which supervisors have considerable power relative to their subordinates. Therefore, we proxy a power imbalance by the average wage of supervisors.

- Supervisor's hourly wage. The HR manager estimate of the percent of a supervisor's pay that is based on hourly wage.
- Supervisor average wage. The HR manager estimate of supervisor's monthly wages and benefits, divided by 28.

**Productivity.** Two measures of firm productivity are used. First, productivity is measured as the time required to complete the daily production target. A longer time indicates a lower level of productivity. Second, General Managers are surveyed on whether low production efficiency is an obstacle to their business success. Responses are coded 1=Not a concern, 2=Minor Concern, 3=Modest Concern and 4= Major concern.

**Cost Components.** Financial managers are surveyed on the main cost components including value of capital and land, rent, electricity, transportation, communication, labor cost, and other costs.

**Hours Worked.** Workers are asked which days they usually work each week. A follow-up question asks what time they start work each day and what time they end work each day. The HR manager is surveyed on the number of employees. The total hours worked is a product of the total number of employees and the average hours worked per employee.

**Profits.** Firm managers are surveyed on quarterly total sales. Profits are calculated as the difference between revenue and costs.

## VI. EMPIRICAL RESULTS

We turn first to consider the determinants of sexual harassment. Estimates of Equation (34) are reported for Haiti, Vietnam, Jordan, and Nicaragua in Tables 5-8, respectively. Coefficients for insignificant variables are suppressed.

Turn first to findings from Haiti in Table 5, column 1. As expected the presence of nearby competitors reduces reports of sexual harassment, indicating the importance of labor market competition in protecting vulnerable workers from sexual exploitation. The presence of one additional apparel firm within one kilometer significantly lowers reporting and degree of intensity of concern with sexual harassment (-0.209). Similarly, firms for which the HR manager is concerned with turnover also have fewer reports of sexual harassment (-0.421).

Gender and age are also significant in explaining sexual harassment. Young workers and men are more likely to report on-going sexual harassment in the factory. Such a finding is consistent with expectations that the workers most vulnerable to sexual harassment may be reluctant to report their perpetrators.

Turning to the structure of incentives, workers with a production target are significantly more vulnerable to sexual solicitation than other workers (0.934). While the theoretical model focuses on the adverse effects of low-powered incentives for supervisors, the theoretical point applies equally well to high-powered incentives for workers.

Power asymmetries also appear to be a contributing factor. The higher a supervisor's income the more likely workers are to report sexual harassment (0.003) as seen in column (4) of Table 5.

Findings for Vietnam are distinctive in that awareness of sexual harassment by Vietnamese HR managers is positively correlated with reports of sexual harassment as can be seen in columns (1), (2) and (3) of Table 7. A positive coefficient indicates that while HR managers are aware of the presence of sexual harassment, this awareness is not translating into a culture of intolerance of such behavior.

Interestingly, the structure of incentives is playing a diminished role in Jordan (Table 7) and Nicaragua (Table 8). In both countries, sexual harassment is increasing in the level of supervisor compensation and the power of incentives. These findings suggest that the structure of incentives is important in creating a vulnerability to sexual harassment. However, the high-powered incentives for workers rather than the low-powered incentives for supervisors appear to be the particular aspect of asymmetry that is creating a channel of vulnerability.

The fact that supervisor pay is positively correlated with sexual harassment, whether measured in terms of total compensation or power of incentives, directs attention to the social psychological importance of relative power rather than structure of incentives in determining sexual harassment. Further, we cannot rule out the possibility that the opportunity to solicit sexual favors is a component of the compensation package for supervisors. A positive correlation between the level of supervisor pay and reports of sexual harassment is consistent with high paid supervisors taking a portion of their compensation in the form of sexual favors.

Before moving on to the impact of sexual harassment on profits, it is worth noting that for Nicaragua, awareness of sexual harassment on the part of the HR manager translated into a change in organizational norms. That is, reports of sexual harassment are lower (-0.2862) in factories in which the HR manager reports awareness of the issue, as can be seen in column (3) of Table 8.

We turn next to the relationship between sexual harassment and firm performance. Sexual harassment may reduce firm profits if it adversely affects workforce retention and lowers productivity. Estimates of equation (34) indicate that sexual harassment adversely affects a firm's ability to retain workers. Increased competition in the labor market provides firms with an incentive to control sexual

harassment within the factory. However, we also find some evidence that the opportunity to solicit sexual favors is a component of the supervisor's compensation package.

Turning to productivity, estimates of equation (35) are reported for Vietnam in Tables 9 and 10 and for Jordan in Table 11. In Vietnam, productivity is measured by the time required to complete a production target. Reports of sexual harassment significantly increase the time to target for both Monday (column 1) and Friday (column 2). Productivity in Vietnam and Jordan is also measured by the factory manager's concern with a low efficiency rate. Reports of sexual harassment are positively correlated with a factory General Manager's concern with low efficiency as an obstacle to business success.

Given the negative effect of sexual harassment on productivity and worker retention, a positive profit link between sexual harassment and profits would have to arise from the opportunity to solicit sexual favors as a component of a cost-minimizing compensation package for supervisors. Estimates of a relationship between profits and sexual harassment are reported in Table 10 for Vietnam and Table 11 for Jordan. In both cases, there is a very strong negative relationship between incidence of sexual harassment and firm profits. The strong negative relationship between sexual harassment and profits is clearly evident in the scatter plots presented in Figures 2 (Vietnam) and 3 (Jordan).

## **VII. Identification Strategy**

Establishing a causal relationship between Better Work assessments, advisory services and training requires that there be some randomness in the exposure to Better Work at the point when data is collected. Random exposure to Better Work would be most directly accomplished by employing a randomized controlled trial. In the case of individual level interventions, it is possible to randomly assign participants to one of two treatment groups. However, most of the Better Work intervention is a factory level treatment. Random assignment to the broader Better Work program was not possible.

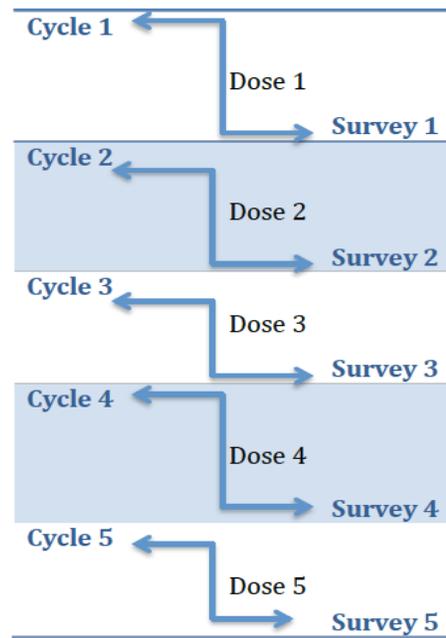
One source of random exposure is generated by the timing of enterprise assessments. Each assessment is unannounced and typically occurs in a window of 10 to 13 months after the preceding assessment. The impact of an assessment can be detected by performing a data collection after one factory has received an assessment but before a second similar factory has had an assessment.

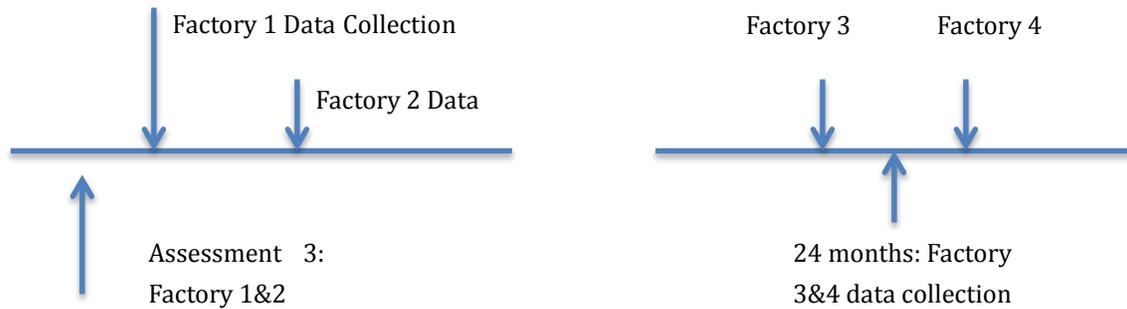
A second source of random exposure can be introduced through the timing of the data collection. The impact of exposure to months of treatment can be detected by randomly assigning factories to the number of months that elapse between two data collections.

The sequence of data collection is depicted in the figure to the right. A factory will have an assessment that is referred to as a cycle. Some months after the assessment, a data collection will occur. The time that elapses between the assessment and the data collection is the dose. The dose measures the number of months of treatment following the assessment.

The identification strategy is indicated in the two figures below. Consider four factories that have been in Better Work for about 24 months. All are ready for their 3<sup>rd</sup> assessment.

In the panel on the left, both factories receive their 3<sup>rd</sup> assessment at about the same time. Factory 1 then receives a data collection shortly thereafter. Factory 2 receives a data collection several months latter. Comparing the data for factory 2 relative to factory 1, controlling for year and month, provides a measure of the impact of months of exposure to Better Work.





In the panel on the right, Factory 3 receives its 3<sup>rd</sup> assessment 11 months after the 2<sup>nd</sup> assessment. Factory 4, receives its 3<sup>rd</sup> assessment 13 months after its 2<sup>nd</sup> assessment. If a data collection occurs in the intervening period, comparing the data for factory 3 relative to factory 4, controlling for year and month, provides a measure of the impact of the 3<sup>rd</sup> assessment.

Cycle and dose effects are estimated with the following equation:

$$(36) X_{it} = a + b * cycle2 + c * cycle3 + d * dose1 + e * dose2 + f * dose3 + g * Z_{it}$$

where  $X_{it}$  is the outcome variable of interest for factory  $i$  at time  $t$ , the cycle variables are binary and the dose variables are months elapsed since the last assessment. The equation is controlled for month and year to account for secular events and firm characteristics  $Z$ .

A classic treatment effect would be indicated if the coefficients on the cycle variables are increasing in magnitude with each assessment and the coefficients of the dose variables have the same sign as the coefficients of the cycle variables. If the cycle coefficients increase in size, then the treatment effect is rising with each successive assessment. If the coefficients on the dose variables are the same sign as for the cycle variables then the treatment effect is curing in the months following the assessment. However, if the sign on the coefficient of the dose variable is opposite the sign for the cycle variable, then the treatment effect is decaying

following an assessment. A factory level panel estimator with random effects is used to estimate the equation (36).

## VIII Impact Results

Reports of sexual harassment in Vietnam are extremely rare. At the 1<sup>st</sup> assessment cycle 97.6 percent of workers report no concerns with sexual harassment. By the 5<sup>th</sup> cycle, this figure rises to 99.1 percent.

The decline, as small as it is, is a Better Work treatment effect. As can be seen in Table 12, all of the cycle and dose variables are negative and statistically significant for both the binary and intensity measures of sexual harassment, with the exception of *dose5*. The cycle effects are increasing in absolute value, with the exception of the transition from cycle 3 to cycle 4.

Treatment effects are depicted in Figures 4 and 5. Figure 4 is a graph of the predicted treatment effect averaged by treatment months. Figure 5 depicts the average treatment effect by assessment cycle.

At the end of the 5<sup>th</sup> cycle, the decline in the proportion of participants reporting sexual harassment concern due to Better Work is -0.08, as can be seen in Figure 5. That is, all of the observed decline in sexual harassment reports is attributable to Better Work.

Similar results emerge for the intensity measure, as can be seen in Figures 6 and 7. At the 5<sup>th</sup> cycle, Better Work Vietnam has reduced the average intensity score by 0.11 on a 7-point scale.

Reports of sexual harassment in Indonesia are far more common. Only 15.6 percent of participants report no concern at the 1<sup>st</sup> assessment. This figure initially rises at cycles 2 and 3, to over 20 percent, but falls to 12.8 percent by the 4<sup>th</sup> assessment. Workers are particularly likely to report their concerns to the HR manager and the trade union representative. By the 4<sup>th</sup> cycle, 42.2 percent have reported sexual harassment to their HR manager and 30.4 percent have made a report to the trade union representative. Strikes or

near strikes related to sexual harassment decline from 4.3 percent at the 1<sup>st</sup> assessment to one percent at the 4<sup>th</sup> assessment. There is also a large decline in workers who consider quitting as a result of sexual harassment. At the 1<sup>st</sup> assessment, 8.6 percent consider quitting. But at the 4<sup>th</sup> cycle, this figure has dropped to 2.9 percent.

Better Work treatment effects reflect the pattern in the summary data, as can be seen in Table 13 and Figures 8 and 9. By the end of the 4<sup>th</sup> cycle, the proportion of workers reporting sexual harassment drops by 0.13. The intensity effect initially exhibits a similar decline, as can be seen in Figures 10 and 11. At the 3<sup>rd</sup> assessment cycle, the intensity measure has declined by 0.84 on a 7-point scale. In contrast to the binary measure, intensity rises by 0.25 at the 4<sup>th</sup> assessment. However, the rise in intensity is due to the increased voicing to the HR manager and trade union representative, neither of which is necessarily a bad outcome.

A more persistent pattern of improvement emerges for Jordan. At the 1<sup>st</sup> assessment, 70.1 percent of participants report no concern with sexual harassment. That figure falls to 66.4 at the 2<sup>nd</sup> assessment. Improvement emerges thereafter with 77.8 percent reporting no concern by the 6<sup>th</sup> assessment.

The Better Work treatment effect is large. The coefficients on the cycle variables are negative (with the exception of cycle 2) and increasing in absolute value with each assessment cycle, as can be seen in Table 14. The only source of concern is evidence of decay after the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> assessments. Overall, at the 6<sup>th</sup> assessment, the Better Work treatment effect reduced the proportion of workers reporting sexual harassment by 0.18 and reduced the intensity of reports by 0.58 on a 7-point scale, as can be seen in Figures 12 to 15.

Reports of sexual harassment in Haiti are also high. At the first assessment, 68.2 percent of participants report no sexual harassment concern. Significant improvement emerges by the 10<sup>th</sup> assessment cycle, with 79.2 percent of participants reporting no concern. However, the improvement does not reflect a Better Work treatment effect that depends on the duration of program exposure.

If the improvement in the summary statistics is attributable to Better Work, the cause would have been the contribution the program made to a growing awareness of sexual harassment as an industry problem and industry-wide training. The year coefficients are negative and increasing in absolute value. In comparison to 2011, the proportion of workers reporting concern with sexual harassment drops by 0.19 in 2012, 0.39 in 2014 and 0.52 in 2015. Such year effects are extremely large. There is no obvious cause other than the attention brought by Better Work that might explain such a dramatic shift.

Reports of sexual harassment in Nicaragua are similar to those in Haiti. At the 1<sup>st</sup> assessment cycle, 70.4 percent of participants report no concern with sexual harassment. This number rises at the 2<sup>nd</sup> assessment to 74.5 percent, but falls at the 3<sup>rd</sup> assessment to 67.5 percent. The cycle effects are all positive. We observe negative dose effects only for the intensity measure. The overall effect is a reduction in sexual harassment.

However, as with Haiti, results for Nicaragua indicate that changes in sexual harassment concern are not related to the amount of exposure to Better Work that a factory has experienced. Yet, it is still possible that Better Work has had an impact on sexual harassment concerns in Nicaragua. The year effects, particularly for the binary indicator, are negative and increasing in absolute value. Compared to 2012, the proportion of workers concerned with sexual harassment dropped by 0.11 in 2013, 0.25 in 2014 and 0.28 in 2015. As with Haiti, it seems unlikely that such a dramatic drop would have occurred in the absence of Better Work.

## **IX CONCLUSIONS**

Workplace sexual harassment is pervasive in developing country apparel firms. Understanding its causes and consequences is critical to developing a program of deterrence. Organizational psychology focuses attention on organizational awareness and gender job context. Social psychology directs our attention to organizational norms, opportunity, and power asymmetries. Labor economics emphasizes

the importance of labor market competition, and personnel economics emphasizes the importance of incentive alignment. Analyzing a micro-dataset collected in Better Work participating apparel factories in Haiti, Jordan, Vietnam, and Nicaragua, we find evidence that all of the mechanisms are significant determinants of sexual harassment.

HR managers are often aware that sexual harassment is a source of concern for their employees. However, awareness does not commonly translate into the establishment of organizational norms deterring sexual harassment. In the analysis reported above, awareness of sexual harassment translated into deterrence only in Nicaragua. The power that supervisors have over workers is particularly salient in Jordan. Supervisor training, focused on establishing organizational norms, has the potential to reduce the role of hierarchical structures and opportunity to sexually harass in the incidence of sexual harassment.

In Haiti and Vietnam, the presence of a production quota for workers is a significant predictor of sexual harassment. The fact that a supervisor is charged with monitoring work performance makes workers vulnerable to sexual solicitation. While eliminating or reducing pay incentives for workers may reduce the incidence of sexual harassment, such a remedy may have the adverse effect of reducing productivity. Rather, objective monitoring of work effort will allow a firm to preserve the incentive effects of performance-based pay, while diminishing the power a supervisor has over a worker.

Firms have an incentive to control the incidence of sexual harassment in their factories. Sexual harassment is positively correlated with time to complete a production target and concerns on the part of the factory manager with low production efficiency. Sexual harassment also increases workforce turnover and likely raises the wage necessary to retain workers. We find strong evidence that the negative effect that sexual harassment has on productivity and worker retention manifests as reduced firm profits.

Better Work is found to have a significant effect on sexual harassment in Vietnam, Indonesia and Jordan. In Vietnam, the Better Work treatment effect reduces reporting of any type of sexual harassment to zero after five assessment cycles. The Better Work treatment effect for Indonesia reduces the proportion of workers reporting some form of sexual

harassment by 0.13 by the 3<sup>rd</sup> assessment cycle, though there is significant decay in treatment effect following the 3<sup>rd</sup> and 4<sup>th</sup> assessments. The intensity of reported sexual harassment falls by the 3<sup>rd</sup> assessment, but again with decay at the 4<sup>th</sup> assessment. The Better Work treatment effect for Jordan reduces the proportion of workers reporting some form of sexual harassment by 0.18 after the 6<sup>th</sup> assessment cycle and the intensity of reported verbal abuse falls by 0.58 on a 7-point scale.

Haiti and Nicaragua do not exhibit a Better Work treatment effect associated with duration of exposure to Better Work. However, in both cases, there is a strong pattern of secular decline in reports of sexual harassment. Between 2011 and 2015, the proportion of participants reporting any form of sexual harassment associated with year effects declined by 0.52 in Haiti. Between 2012 and 2015, the proportion of participants reporting any form of sexual harassment associated with year effects declined by 0.28 in Nicaragua. A likely explanation for the apparent secular decline is the attention that the Better Program was bringing to the issue of sexual harassment. Therefore, it is entirely possible that Better Work had a significant effect on sexual harassment in Haiti and Nicaragua unrelated to the amount of time the firm has participated in Better Work.

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Figure 1 Sexual Harassment and Firm Outcomes

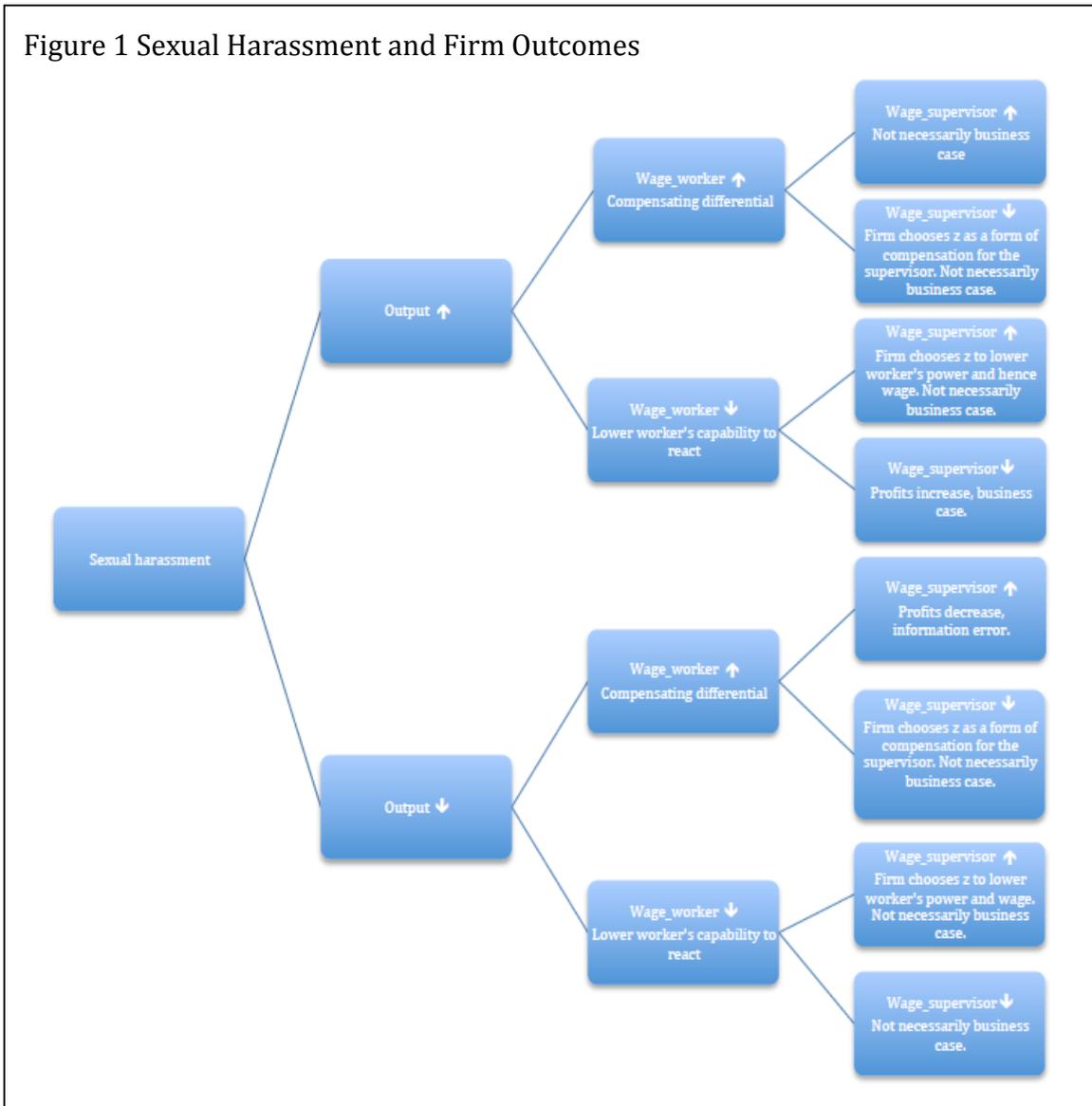


Figure 2 Vietnam Profits and Sexual Harassment Concern

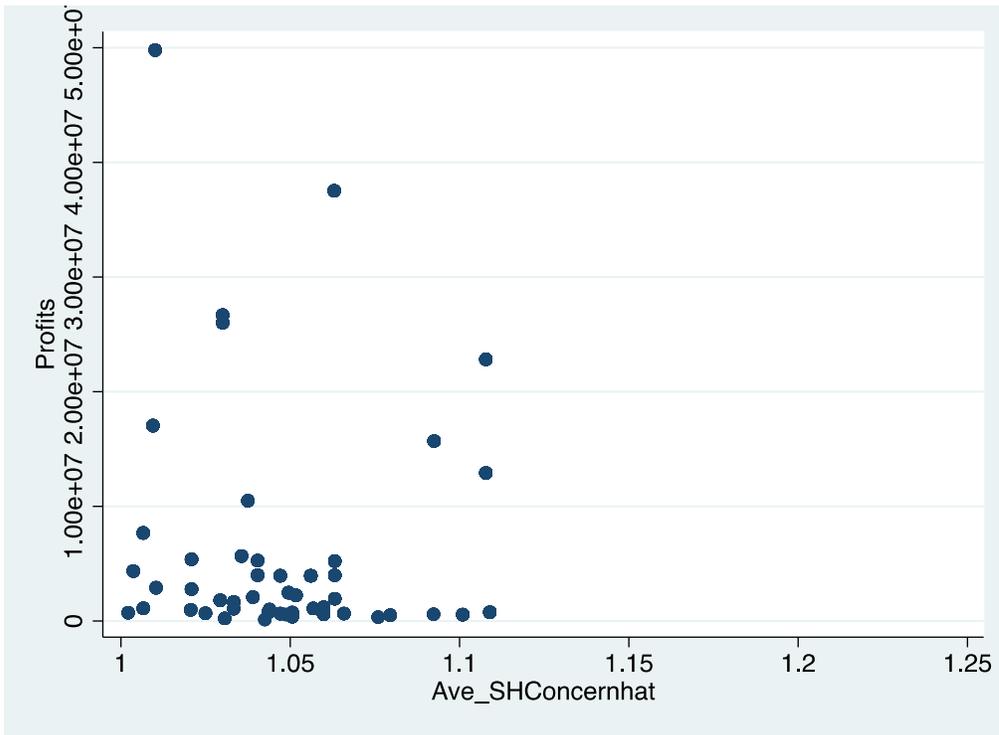


Figure 3 Jordan Profits and Sexual Harassment Concern

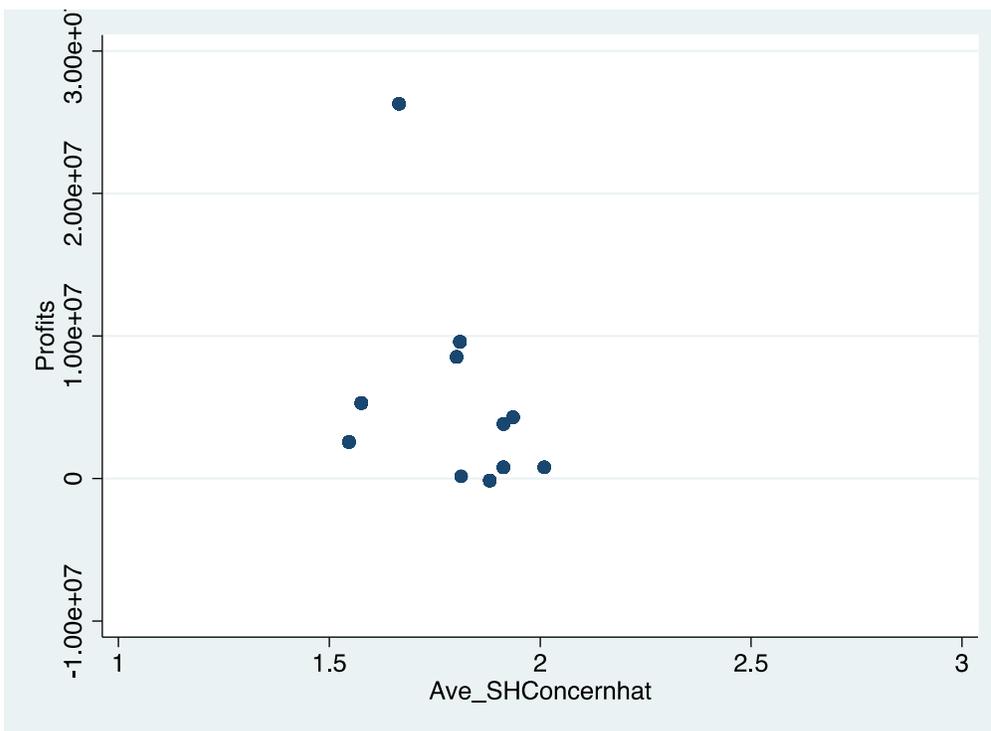


Figure 4 Sexual Harassment Predicted Values Treatment Months Vietnam

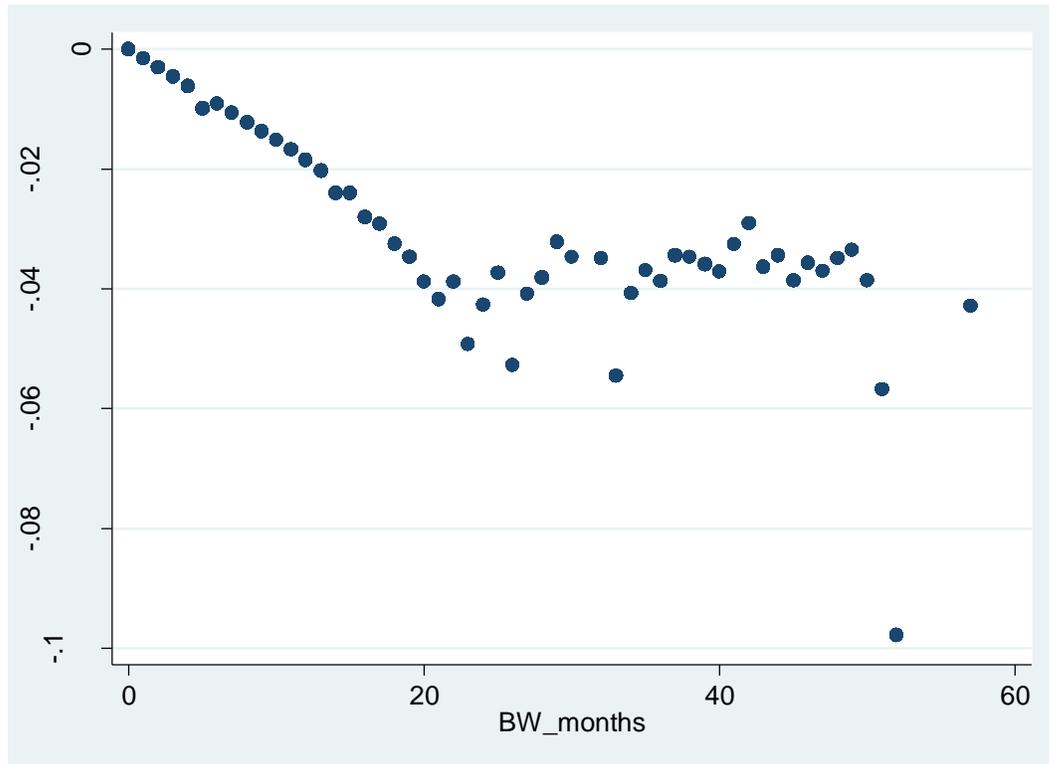


Figure 5 Sexual Harassment Treatment by Cycle Vietnam

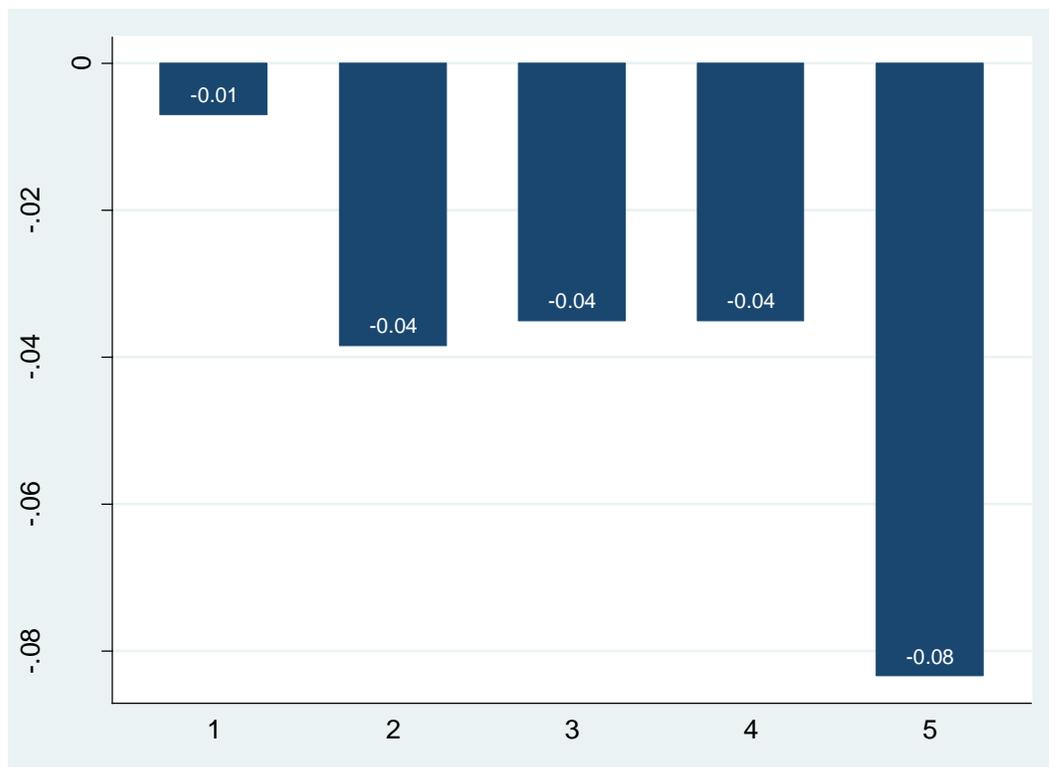


Figure 6 Sexual Harassment Intensity Predicted Values Treatment Months Vietnam

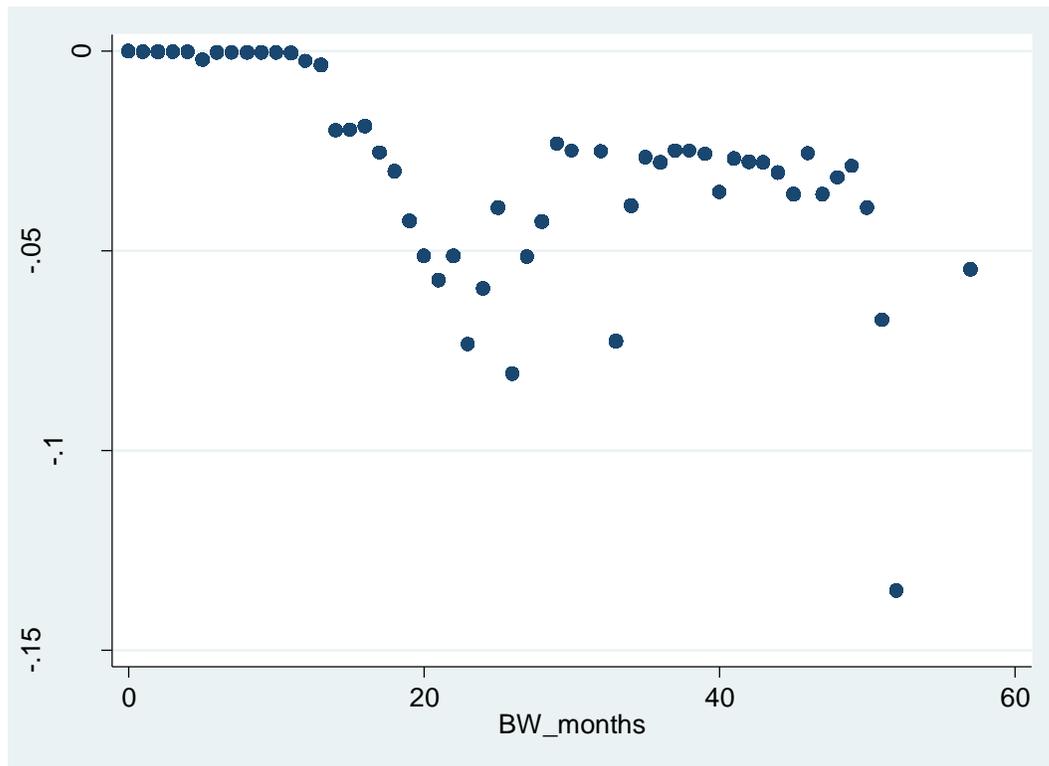


Figure 7 Sexual Harassment Intensity Treatment by Cycle Vietnam

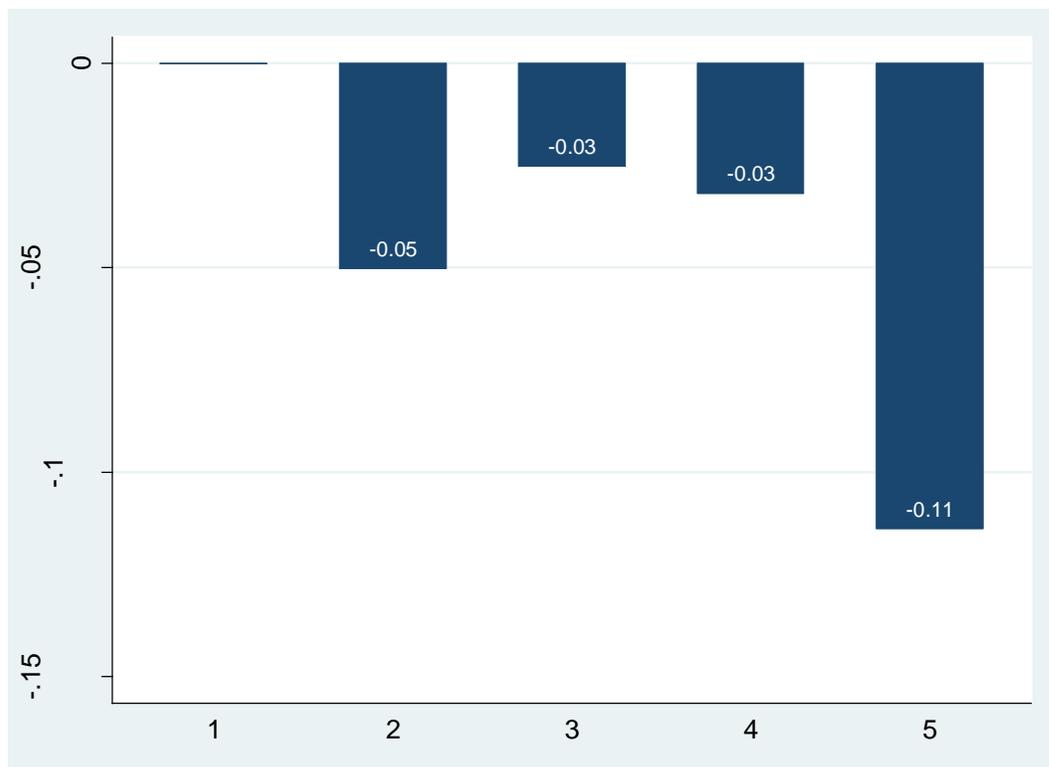


Figure 8 Sexual Harassment Predicted Values Treatment Months Indonesia

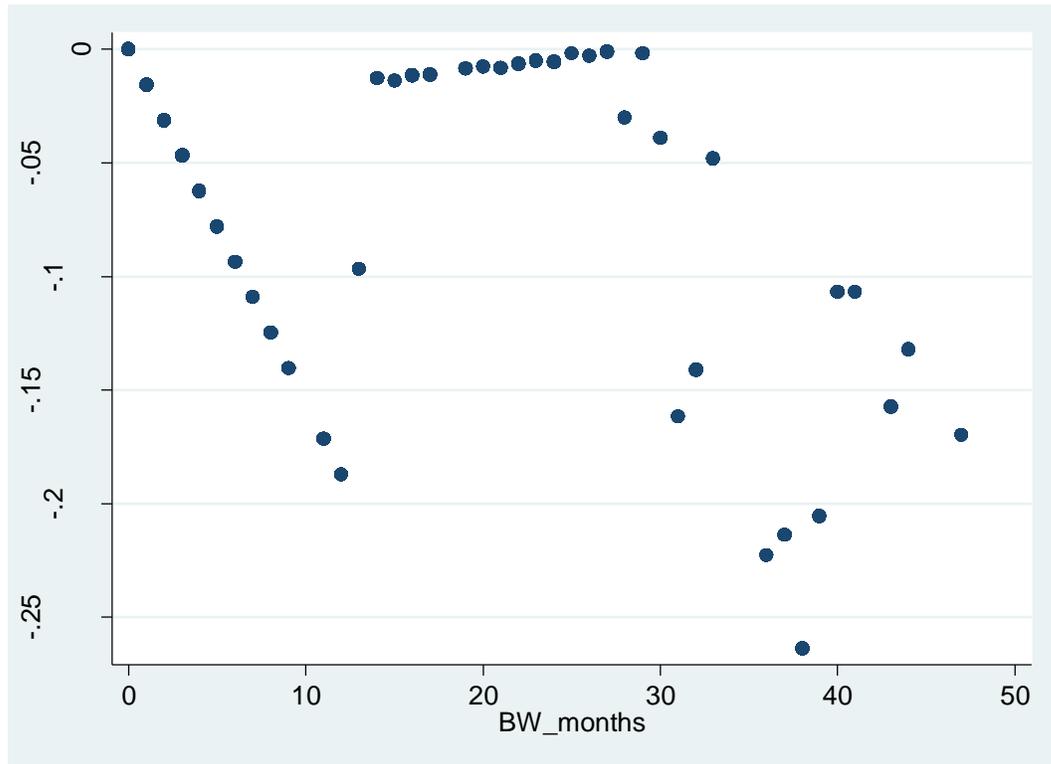


Figure 9 Sexual Harassment Treatment by Cycle Indonesia

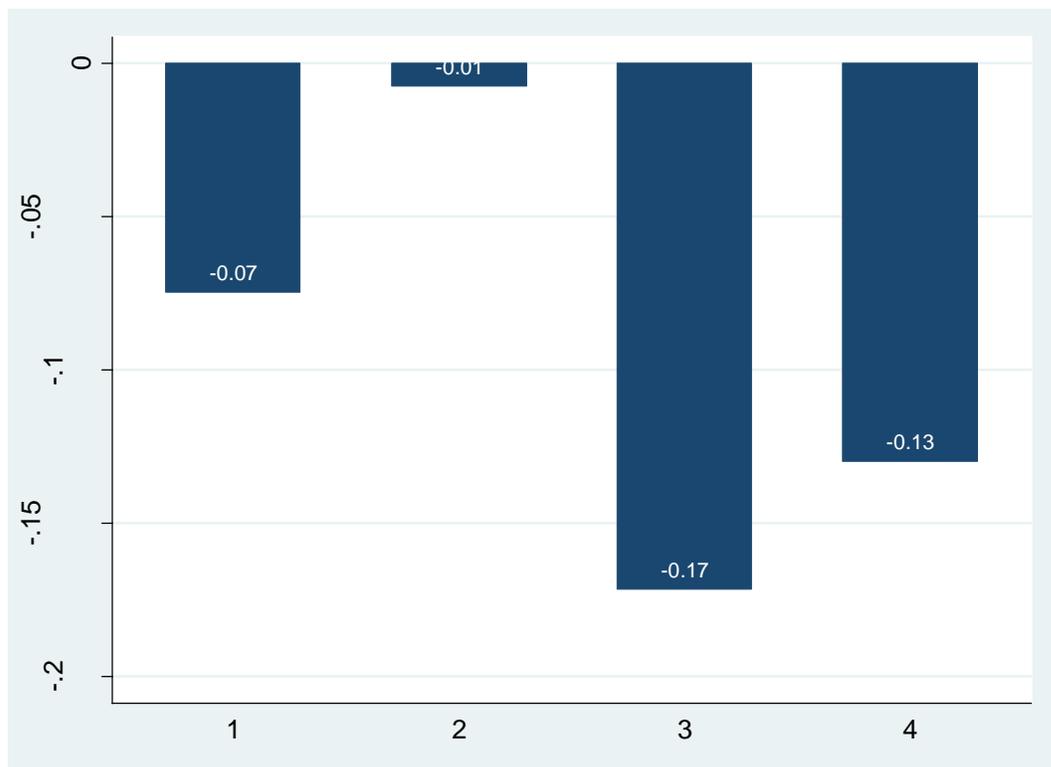


Figure 10 Sexual Harassment Intensity Predicted Values Treatment Months Indonesia

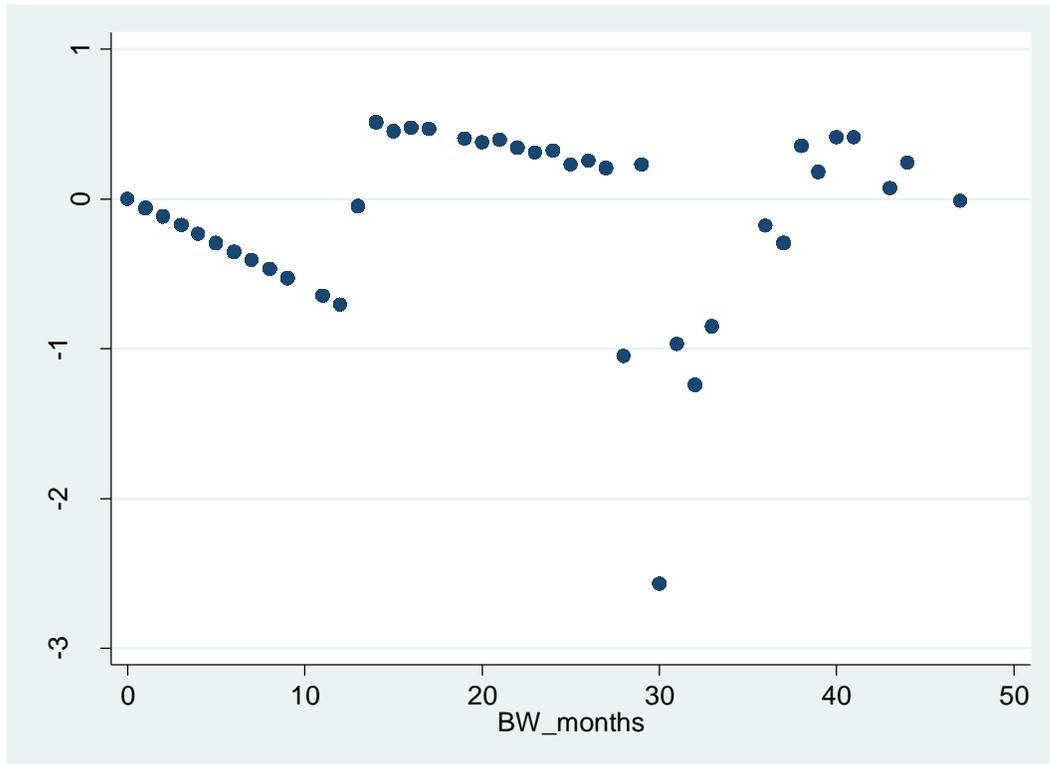


Figure 11 Sexual Harassment Intensity Treatment by Cycle Indonesia

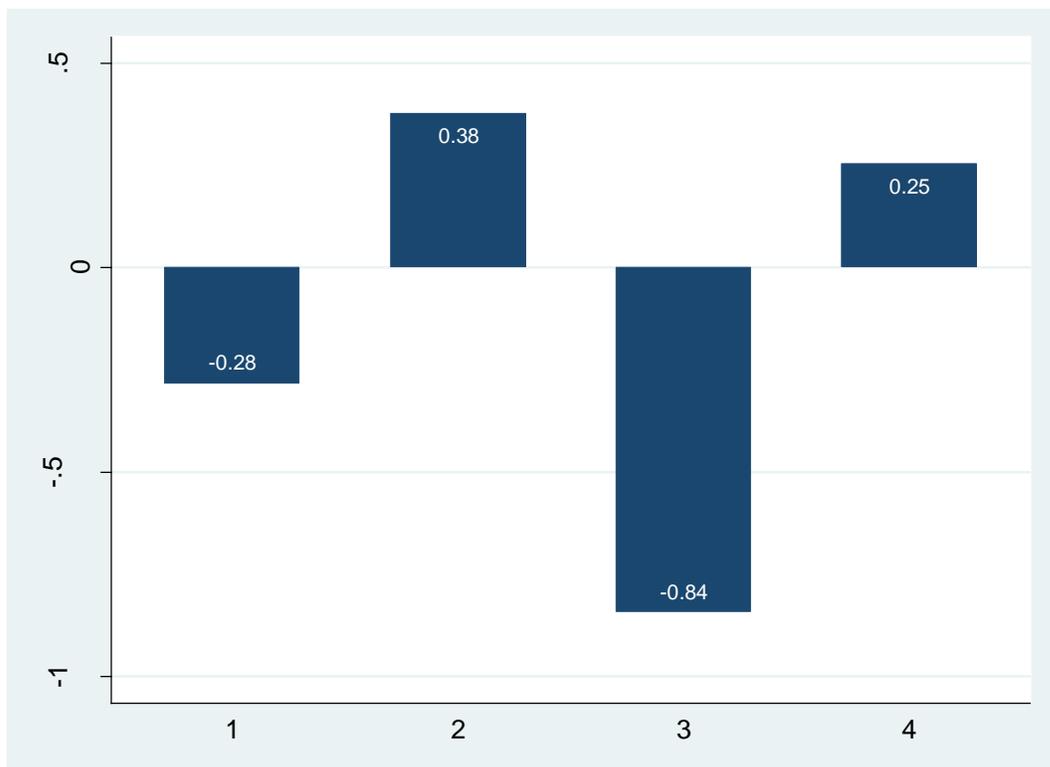


Figure 12 Sexual Harassment Predicted Values Treatment Months Jordan

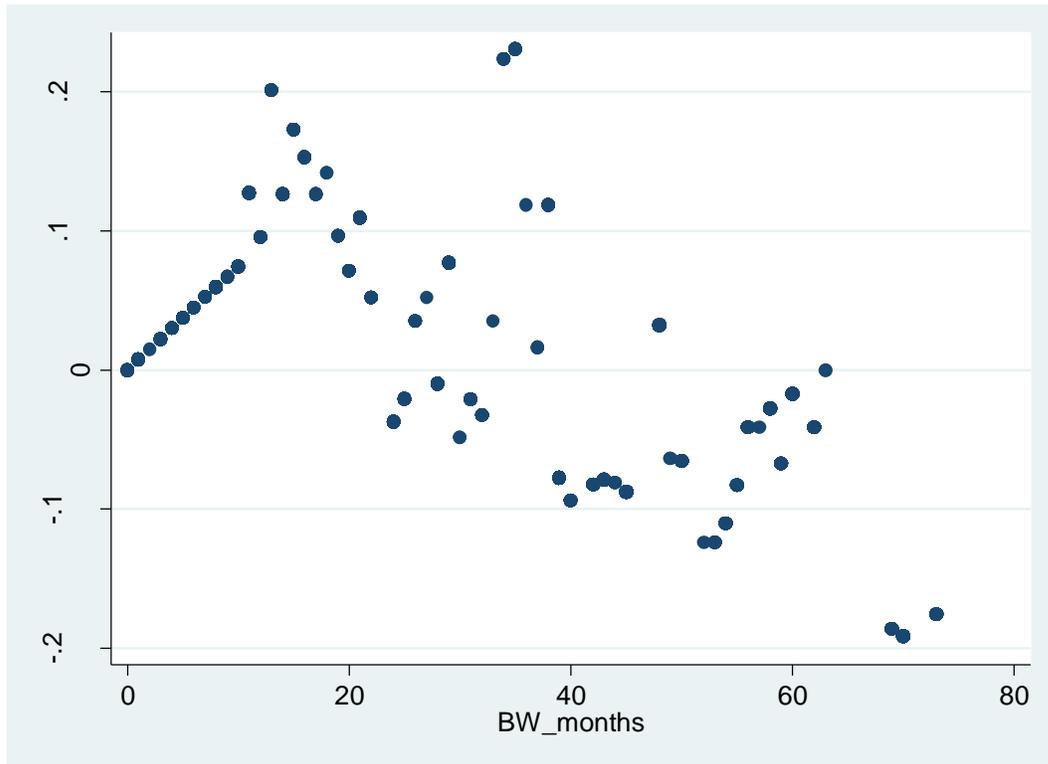


Figure 13 Sexual Harassment Treatment by Cycle Jordan

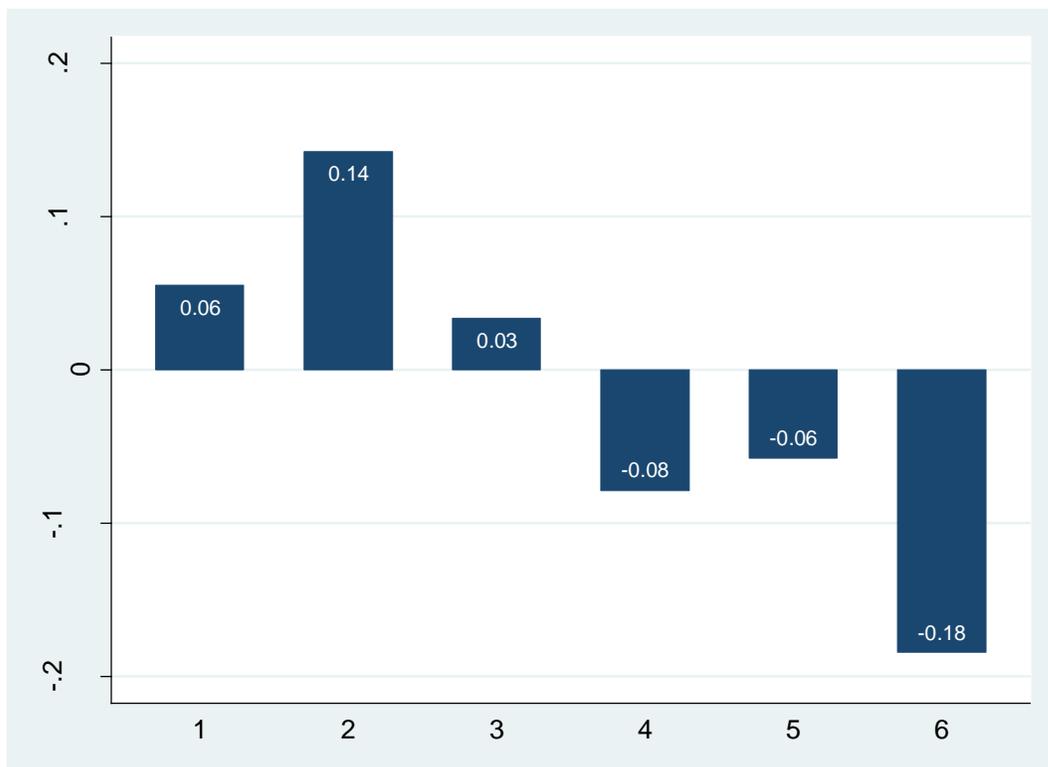


Figure 14 Sexual Harassment Intensity Predicted Values Treatment Months Jordan

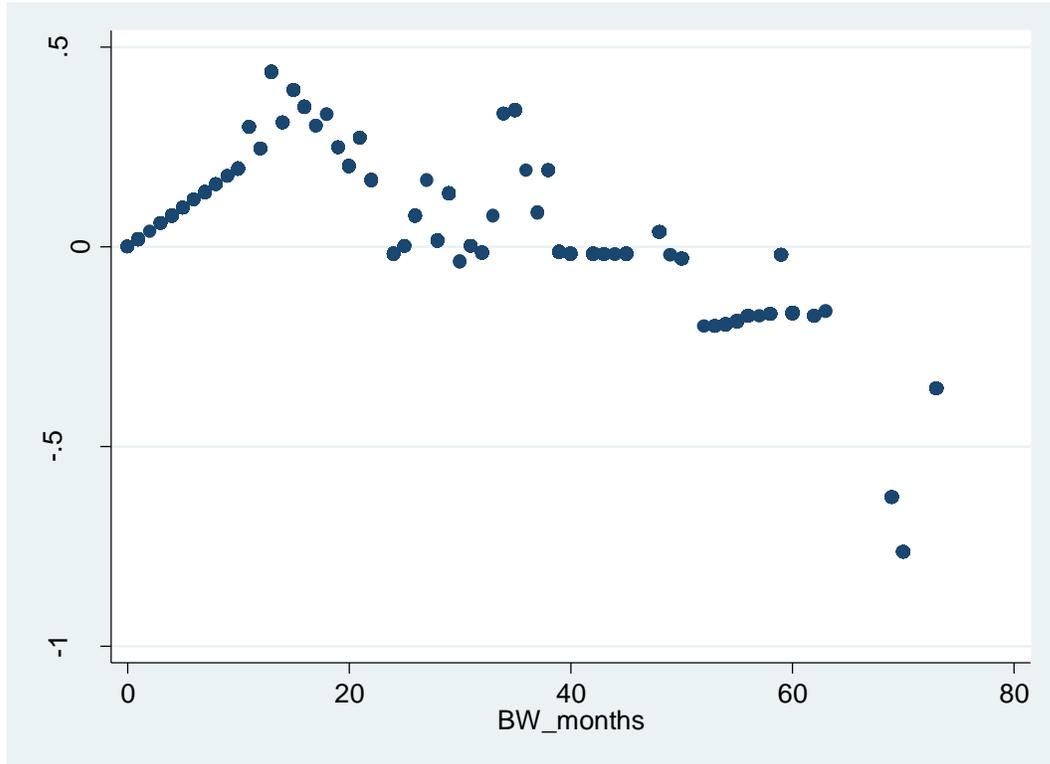
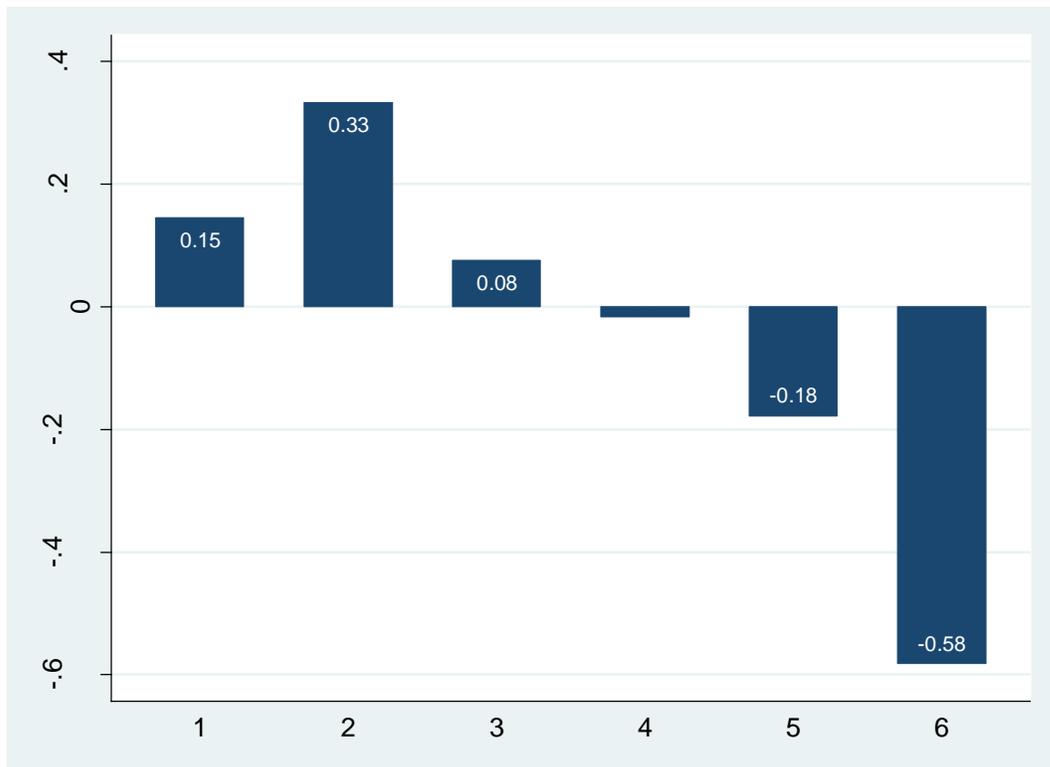


Figure 15 Sexual Harassment Intensity Treatment by Cycle Jordan



<b>Table 1 Haiti sample characteristics</b>	Mean	Median	SD	Min	Max	Count
<b>Demographic</b>						
Female	0.7	1	0.5	0	1	963
Age	5.2	5	1.3	3	8	963
Education	4.3	4	2	1	9	955
Residence	1	1	1	0	3	957
Haiti	0.3	0	0.5	0	1	1042
Bangladesh	0.1	0	0.3	0	1	1042
Sri Lanka	0.4	0	0.5	0	1	1042
Pakistan	0	0	0	0	1	1042
China	0	0	0.2	0	1	1042
Other	0.1	0	0.3	0	1	1042
<b>Job characteristics</b>						
Years Worked	6.6	7	3.3	1	12	666
Skill Level	0	0	0	0	0	668
<b>Job description</b>						
Sewer	0.5	0	0.5	0	1	658
Cutter	0.1	0	0.3	0	1	658
Spreader	0	0	0.1	0	1	658
Checker	0.1	0	0.3	0	1	658
Mechanic	0	0	0.1	0	1	658
Packer	0	0	0.2	0	1	658
Quality Control	0.1	0	0.3	0	1	658
Supervisor	0	0	0.2	0	1	658
Helper	0	0	0.2	0	1	658

Other	0.2	0	0.4	0	1	658
<b>Contracts</b>						
Contract Type	0	0	0	0	0	668
CBA	0.1	0	0.3	0	1	579
<b>Productivity</b>						
Production Target	1	1	0.5	0	2	630
Production Target Day	0	0	0	0	0	668
Production Target Time	0	0	0	0	0	668
Turnover Concern	2.3	3	1	1	4	501
<b>Training</b>						
Rights Training	0.2	0	0.4	0	1	624
Hours Training	0.1	0	0.3	0	1	624
<b>Human trafficking indicator</b>						
Remaining Debt	0.4	0	0.5	0	1	665
<b>Sexual harassment</b>						
SH Concern	0.4	0	0.5	0	1	412
SH Concern level	1.9	1	1.3	1	6	159
SH Compliance	0	0	0.2	0	1	789

<b>Table 2 Vietnam</b>						
<b>Sample Characteristics</b>	Mean	Median	Standard Deviation	Min	Max	Count
<b>Demographic</b>						
Female	0.8	1	0.4	0	1	4693
Married	0.5	1	0.5	0	1	4928
Education	3.3	3	1	1	9	4692
Grow up place	1.9	2	0.4	1	3	4693
Years of School	9	9	2.7	0	16	4683
Still in School	0	0	0.2	0	1	4692
Daughters	0.3	0	0.5	0	1	4685
Sons	0.3	0	0.5	0	1	4687
<b>Job characteristics</b>						
Years Worked	4.4	3	3.3	0	20	4687
Skill Level	2.9	3	1.1	1	5	4675
<b>Job description</b>						
Sewer	0.5	0	0.5	0	1	4687
Cutter	0	0	0.2	0	1	4687
Spreader	0	0	0.1	0	1	4687
Checker	0.1	0	0.3	0	1	4687
Mechanic	0	0	0	0	1	4687
Packer	0.1	0	0.2	0	1	4687
Quality Control	0	0	0.1	0	1	4687
Supervisor	0	0	0.2	0	1	4687
Helper	0.1	0	0.3	0	1	4687
Other	0.2	0	0.4	0	1	4687
<b>Contracts</b>						

Contract Type	4.4	4	0.8	1	6	4654
CBA	0.9	1	0.3	0	1	4502
<b>Productivity</b>						
Production Target Day	4.9	6	2	1	2	130
Production Target Hour	15:60	16:30	318.9	4:00	20:30	129
Turnover Concern	1.4	1	0.8	0	4	4543
<b>Sexual harassment</b>						
SH Concern	0	0	0.2	0	1	4634
SH Concern level	2.3	2	1.2	1	6	112
SH Compliance	0	0	0	0	0	3820
Informant Index	0.3	0	0.4	0	1	4693

<b>Table 3 Jordan sample characteristics</b>	Mean	Median	SD	Min	Max	Count
<b>Demographic</b>						
Female	0.7	1	0.5	0	1	963
Age	5.2	5	1.3	3	8	963
Education	4.3	4	2	1	9	955
Live dorm	1	1	1	0	3	957
Jordan	0.3	0	0.5	0	1	1042
Bangladesh	0.1	0	0.3	0	1	1042
Sri Lanka	0.4	0	0.5	0	1	1042
Pakistan	0	0	0	0	1	1042
China	0	0	0.2	0	1	1042
Other	0.1	0	0.3	0	1	1042
<b>Human trafficking indicator</b>						
Years Worked	5.1	7	3.1	1	9	959
Working Decision	1.7	1	1.7	1	9	961
Work Permit	1.8	3	1.4	0	3	956
Work Permit Paid	0	0	0.3	0	3	961
Money Contract	36,815.8	18,000.0	80,111.30	0	800,000	478
Factory Paid	0	0	0.2	0	1	961
Remaining Debt	0.1	0	0.3	0	1	963
<b>Job characteristics</b>						
Years Worked	6.8	7	3.2	1	12	960
Skill Level	0.1	0	0.6	0	5	961
<b>Job description</b>						
Sewer	0.5	0	0.5	0	1	957
Cutter	0.1	0	0.2	0	1	957

Spreader	0	0	0.1	0	1	957
Checker	0	0	0.2	0	1	957
Mechanic	0	0	0.1	0	1	957
Packer	0.1	0	0.2	0	1	957
Quality Control	0.1	0	0.3	0	1	957
Supervisor	0	0	0.2	0	1	957
Helper	0.1	0	0.3	0	1	957
Other	0.2	0	0.4	0	1	957
<b>Productivity</b>						
Production Target	1.2	1	0.4	0	2	934
Production Target Day	0	0	0	0	1	963
Production Target Time	0	0	0.5	0	17	963
Turnover Concern	1.7	1	0.9	1	4	1189
<b>Contracts</b>						
Contract Type	6.6	8	2.9	1	9	873
CBA	0.4	0	0.5	0	1	845
<b>Training</b>						
Rights Training	0.1	0	0.3	0	1	906
Hours Training	0.1	0	0.3	0	1	906
<b>Sexual harassment</b>						
SH Concern	0.3	0	0.5	0	1	717
SH Concern level	2.5	2	1.6	1	6	244
SH Compliance	0	0	0	0	1	868

<b>Table 4 Nicaragua sample characteristics</b>	Mean	Median	SD	Min	Max	Count
<b>Demographic</b>						
Female	0.5	0	0.5	0	1	153
Age	4.9	5	1.2	3	8	153
Education	3.9	4	1	1	6	153
<b>Job characteristics</b>						
Years Worked	3.1	2	2.3	1	7	150
<b>Job description</b>						
Sewer	0.5	1	0.5	0	1	153
Cutter	0.1	0	0.2	0	1	153
Spreader	0	0	0.1	0	1	153
Checker	0	0	0.2	0	1	153
Mechanic	0	0	0.1	0	1	153
Packer	0.1	0	0.2	0	1	153
Quality Control	0.1	0	0.3	0	1	153
Supervisor	0	0	0.1	0	1	153
Helper	0.1	0	0.3	0	1	153
Other	0.1	0	0.3	0	1	153
<b>Productivity</b>						
Production Target Day	4.7	5	1.9	0	7	20
Production Target Hour	26.4	35	13.1	2	39	70
Turnover Concern	2.6	3	1.1	1	4	153
<b>Contracts</b>						
Contract Type	7.7	8	1.7	1	9	148
CBA	0.4	0	0.5	0	1	122

<b>Training</b>						
Rights Training	0.6	1	0.5	0	1	74
Hours Training	0.6	1	0.5	0	1	74
<b>Sexual harassment</b>						
SH Concern	0.3	0	0.5	0	1	103
SH Concern level	2.1	1.5	1.3	1	6	34
SH Compliance	0	0	0	0	0	162

<b>Table 5 Haiti Worker Sexual Harassment Concern</b>	SH Concern	SH Concern	SH Concern	SH Concern
	(1)	(2)	(3)	(4)
Nearby Competitor	-0.209***	-0.186	-0.117	
	(0.061)	(0.100)	(0.075)	
Age	-0.088	-0.111	-0.131*	-0.186**
	(0.063)	(0.060)	(0.060)	(0.032)
Female	-0.490***	-0.430**		
	(0.109)	(0.150)		
Job Checker	0.283	0.254	0.260	-0.479*
	(0.370)	(0.320)	(0.406)	(0.156)
Turnover Concern	-0.421***	-0.284	-0.210*	
	(0.075)	(0.172)	(0.103)	
Worker Production Target	0.934***			
	(0.279)			
Supervisor Piece Rate		0.039		
		(0.025)		
Supervisor Daily Wage			0.001	
			(0.001)	
Sup Hourly Wage Percent				0.003*
				(0.001)
Constant	3.819***	3.848***	3.274**	2.893**
	(0.833)	(0.696)	(1.330)	(0.582)
Observations	184	152	173	38
R-squared	0.179	0.144	0.097	0.242

<b>Table 6 Vietnam Sexual Harassment Concern</b>	SH Concern	SH Concern	SH Concern	SH Concern
	(1)	(2)	(3)	(4)
HR awareness SH	0.019**	0.003	0.021**	0.007
	(0.008)	(0.013)	(0.008)	(0.008)
Education	0.022**	0.072	0.022**	0.029**
	(0.010)	(0.074)	(0.010)	(0.012)
Age	-0.003***	-0.005	-0.002**	-0.003**
	(0.001)	(0.003)	(0.001)	(0.001)
Job Cutter	-0.059***	0.032	-0.052***	-0.046***
	(0.011)	(0.058)	(0.010)	(0.013)
Job Quality Control	-0.060***	0.004	-0.058***	-0.065***
	(0.011)	(0.039)	(0.012)	(0.019)
Turnover Concern	-0.001	-0.038*	-0.000	0.001
	(0.008)	(0.020)	(0.009)	(0.009)
Worker Productivity Bonus	0.038**			
	(0.017)			
Supervisor Piece Rate		-0.000		
		(0.001)		
Supervisor Daily Wage			-0.000	
			(0.000)	
Supervisor Hourly Wage Percent				-0.000
				(0.000)
Constant	1.063***	1.058***	1.067***	1.095***
	(0.049)	(0.236)	(0.056)	(0.075)
Observations	4,052	371	3,795	2,734
R-squared	0.011	0.077	0.009	0.014

<b>Table 7 Jordan Sexual Harassment Concern</b>	SH Concern	SH Concern	SH Concern	SH Concern
	(1)	(2)	(3)	(4)
HR awareness SH	0.118**	0.124**	0.176***	0.134***
	(0.044)	(0.045)	(0.044)	(0.043)
Age	-0.155**	-0.121**	-0.117**	-0.113**
	(0.063)	(0.054)	(0.052)	(0.055)
Job Cutter	-0.552***	-0.424**	-0.469**	-0.474**
	(0.167)	(0.179)	(0.188)	(0.174)
Job Helper	-0.031	-0.107	-0.136	-0.105
	(0.211)	(0.216)	(0.216)	(0.219)
Turnover Concern	-0.159	-0.087	-0.103	-0.070
	(0.098)	(0.090)	(0.109)	(0.088)
Worker Hourly Pay USD	0.001			
	(0.006)			
Worker Productivity Bonus		-0.125		
		(0.230)		
Supervisor Piece Rate			0.071**	
			(0.026)	
Supervisor Daily Wage				0.005**
				(0.002)
Constant	2.611***	2.274***	2.152***	2.118***
	(0.531)	(0.424)	(0.453)	(0.419)
Observations	523	608	575	612
R-squared	0.052	0.043	0.060	0.044

<b>Table 8 Nicaragua Vietnam Sexual Harassment Concern</b>	SH Concern	SH Concern	SH Concern	SH Concern
	(1)	(2)	(3)	(4)
HR awareness SH	0.2846	0.0159	-0.2862**	
	(0.1751)	(0.1273)	(0.0699)	
Nearby Competitor	0.3570*	-0.0298	-0.0356	0.1694
	(0.1224)	(0.0406)	(0.0405)	(0.0748)
Age	-0.2324**	-0.2432**	-0.2432**	-0.2486
	(0.0557)	(0.0609)	(0.0609)	(0.1062)
Job Checker	0.7648	0.9576	0.9576	2.7871**
	(0.5573)	(0.6992)	(0.6992)	(0.5352)
Turnover Concern	-0.5884**			
	(0.1568)			
Informant Index	0.9289*	0.9210*	0.9210*	0.6507
	(0.2955)	(0.2923)	(0.2923)	(0.2589)
Worker Productivity Bonus	-0.2703			
	(0.1940)			
Supervisor Piece Rate		0.2139**		
		(0.0625)		
Supervisor Daily Wage			0.0012**	
			(0.0004)	
Supervisor Hourly Wage Percent				0.1058*
				(0.0273)
Constant	2.2585*	1.5553	2.6777**	-4.8692
	(0.8552)	(1.0305)	(0.7034)	(3.1076)
Observations	77	77	77	59
R-squared	0.3155	0.3062	0.3062	0.3675

<b>Table 9 Vietnam Time to finish Production Target</b>	(1)	(2)
	Time to Target Monday	Time to Target Friday
Total Hours Monday	0.189***	
	(0.037)	
Total Hours Friday		0.181***
		(0.037)
Capital Per Person	0.001	0.001
	(0.001)	(0.001)
SH Concern Predicted	6.575***	6.892***
	(0.564)	(0.577)
Constant	4.954***	4.714***
	(0.696)	(0.709)
Observations	2,778	2,684
R-squared	0.056	0.060

<b>Table 10 Vietnam Revenue and Output Efficiency</b>	(3)	(2)
	Low Efficiency Concern	Profits (Million USD)
Average Total Hours	0.008** (0.003)	-0.412*** (70.622)
Capital (1000 USD)	-0.000*** (0.000)	0.075*** (2.763)
SH Concern Predicted	4.567*** (0.424)	-56.22*** (9.107)
Constant	-1.679*** (0.522)	84.521*** (11.451)
Observations	3,397	1,125
R-squared	0.043	0.406

<b>Table 11 Jordan Revenue and Output Efficiency</b>	(1)	(2)
	Low Efficiency Concern	Profits (Million USD)
Average Total Hours	0.070***	0.180***
	(0.006)	(0.29)
Capital (1000 USD)	-0.000	0.027***
	(0.000)	(0.000)
SH Concern Predicted	1.113***	-5.538***
	(0.289)	(1.585)
Constant	-4.160***	-3.977
	(0.653)	(3.732)
Observations	332	239
R-squared	0.298	0.888

Table 12 Sexual Harassment Factory Averages, Vietnam, Cycle and Dose

Year, month and individual characteristics controls

VARIABLES	(1) SH_Binary_Fac	(2) Sexual_Harassment_Fac
cycle2	-0.0194*** (0.00249)	-0.0102* (0.00537)
cycle3	-0.0312*** (0.00431)	-0.0225** (0.00919)
cycle4	-0.0296*** (0.00551)	-0.0209* (0.0117)
cycle5	-0.107*** (0.00705)	-0.149*** (0.0151)
dose1	-0.00152*** (0.000203)	-3.33e-05 (0.000439)
dose2	-0.00303*** (0.000243)	-0.00641*** (0.000525)
dose3	-0.000716** (0.000300)	-0.000502 (0.000655)
dose4	-0.00106*** (0.000398)	-0.00214** (0.000869)
dose5	0.00918*** (0.00103)	0.0134*** (0.00225)
Observations	5,360	5,360
Number of tuftsid	117	117

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 13 Sexual Harassment Factory Averages, Indonesia, Cycle and Dose  
 Year, month and individual characteristics controls

VARIABLES	(1) SH_Binary_Fac	(2) Sexual_Harassment_Fac
cycle2	-0.0133*** (0.00411)	0.524*** (0.0284)
cycle3	-0.0390*** (0.00740)	-2.571*** (0.0541)
cycle4	-0.0943*** (0.0121)	0.495*** (0.0849)
dose1	-0.0156*** (0.000577)	-0.0587*** (0.00400)
dose2	0.000874** (0.000361)	-0.0227*** (0.00253)
dose3	-0.0204*** (0.00149)	0.266*** (0.0102)
dose4	-0.0126*** (0.00192)	-0.0849*** (0.0135)
Observations	2,771	2,716
Number of tuftsid	75	73

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 14 Sexual Harassment Factory Averages, Jordan, Cycle and Dose  
 Year, month and individual characteristics controls

VARIABLES	(1) SH_Binary_Fac	(2) Sexual_Harassment_Fac
cycle2	0.220*** (0.0258)	0.473*** (0.0805)
cycle3	-0.0766*** (0.0211)	-0.0739 (0.0658)
cycle4	-0.0977*** (0.0251)	-0.0159 (0.0784)
cycle5	-0.124*** (0.0295)	-0.199** (0.0920)
cycle6	-0.217** (0.0912)	-1.445*** (0.285)
dose1	0.00745*** (0.00180)	0.0196*** (0.00563)
dose2	-0.0168*** (0.00279)	-0.0305*** (0.00872)
dose3	0.0279*** (0.00272)	0.0379*** (0.00849)
dose4	0.00378 (0.00277)	-0.000492 (0.00866)
dose5	0.0138*** (0.00389)	0.00426 (0.0122)
dose6	0.00517 (0.0138)	0.136*** (0.0430)
Observations	1,855	1,855
Number of tuftsid	41	41

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

